Railway Age Gazette

PUBLISHED EVERY FRIDAY AND DAILY EIGHT TIMES IN JUNE BY THE
SIMMONS-BOARDMAN PUBLISHING COMPANY
WOOLWORTH BUILDING, NEW YORK

CHICAGO: Transportation Bldg. CLEVELAND: Citizens' Bldg.
LONDON: Queen Anne's Chambers, Westminster.

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Subscriptions, including 52 regular weekly issues and special daily editions published from time to time in New York, or in places other than New York, payable in advance and postage free:

United States and Mexico.....$5.00
Canada 6.00
Foreign Countries (excepting daily editions)..... 8.00
Single Copies.....15 cents each

Engineering and Maintenance of Way Edition and four Maintenance of Way Convention daily issues, North America, $1; foreign, $2.

Entered at the Post Office at New York, N. Y., as mail matter of the second class.

WE GUARANTEE, that of this issue 8,750 copies were printed; that of these 8,750 copies 7,410 were mailed to regular paid subscribers to the weekly edition, 250 were provided for counter and news companies' sales, 1,053 were mailed to advertisers, exchanges and correspondents, and 37 were provided for samples and office use; that the total copies printed this year to date were 458,100, an average of 9,349 copies a week.

The RAILWAY AGE GAZETTE and all other Simmons-Boardman publications are members of the Audit Bureau of Circulations.

VOLUME 57 DECEMBER 4, 1914 NUMBER 23

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The New Haven road is receiving unstinted praise from the newspapers for the very successful way in which it took 33,000 passengers to and from the New Haven football game in one day. President Elliott's letter reviewing the work done is noticed in another column; and a significant paragraph in the letter is that wherein he says that "a well-equipped, well-organized, well-managed and well-manned railroad should be able to perform this task satisfactorily." In other words, he expected the fine results which were produced. And he had good grounds for the expectation. The New Haven road has done excellent work with the football crowds before. The special passenger movement this year was heavier than ever before, but the company during the past year has carried out a careful and thorough scheme of expansion of its facilities; and it was to be expected that what the officers set out to do they would do. To those newspapers which have so generously praised the New Haven in connection with this special passenger movement, we offer the suggestion that commendatory mention of railway efficiency would be quite appropriate in many other cases. Beginning with the assumption that the New Haven has been very bad, it is easy to make a glowing paragraph concerning what is seen to be very good. But the striking antithesis is not essential. A 2,000-mile railroad is too big a machine to be thus dealt with. Its good and its bad cannot be tossed off in a paragraph. We make these observations in this connection because they are believed to be worth consideration in connection with other railways and by all newspapers.

Good Work as an Every-day Task

Scrip dividends on railroad stocks have not been very common, but when they have been declared they have always been in the form of a registered warrant or certificate. The Southern Railway declared the last semi-annual dividend of 2 per cent on its preferred stock as payable in scrip, bearing interest at 4 per cent and due in five years. On the New York Stock Exchange 100 shares is the common unit in which trading is done, but the Southern has taken 50 shares as the unit for its scrip dividends. Two per cent on 50 shares would, of course, be $100. The dividend warrants, which are in reality notes of the railway company, are payable to bearer, and each $100 note has attached to it 10 coupons representing semi-annual interest during the period of five years. Fractional scrip has been issued to those holding less than 50 shares, which are exchangeable, when presented in $100 amounts, for the coupon notes above described and which fractional scrip notes bear interest at 4 per cent per year payable at the due date. This is an entirely new form of payment of scrip dividends and the importance of it lies in the step which is made toward convenience for the small holder of securities. The notes are lithographed in a sufficiently intricate pattern to prevent forgeries, but are not so elaborate as to be expensive. It has probably been found that it actually costs the company less to issue this form of scrip dividend than to go to the expense of recording and keeping track of the holders of the stock as of the date of the dividend, and certainly it is infinitely more convenient for stockholders. Incidentally it affords an opportunity for investment to the man who would like to buy railroad stock in $10 or $20 lots.

A New Form of Scrip Dividend

Arthur Wyman, assistant to the president of the Chicago Railway Equipment Company, has contributed to American Industries for November an interesting and able article, entitled "Send Business Men to Congress." Mr. Wyman calls attention to the fact that most of the problems which now come before Congress involve economic and business questions with which men of business training and experience are the best fitted to deal. Therefore, the business interests of the country should take steps to secure the election of such men. Furthermore, he points out, the nucleus for an organization to accomplish this result exists in such organizations as the American Bankers' Association, the National Association of Manufacturers, the Railway Business Association and the many chambers of commerce throughout the country which have been united in the Chamber of Commerce of the United States. "If," says Mr. Wyman, "every man affiliated directly or indirectly with the Chamber of Commerce of the United States would take upon himself the task of disseminating sound doctrine within the radius of his personal acquaintance, how many times multiplied would be the effect of its splendid propaganda. Imagine a condition where every

"Send Business Men to Congress"

man connected with a business concern conceived it to be his duty to 'plug' for the principles in which he believes with the same degree of energy, tact, fairness and constructive ability which he employs in the keen competition of his own business." Certainly, the needs for more business men in Congress, and for a more active participation by business men in public affairs, are fully as great as Mr. Wyman says. Unfortunately, the business interests have in the past worked at cross purposes. Each class of them has sought for what it has conceived to be its own selfish advantage instead of for what would be for the interests of the country as a whole. For example, commercial bodies and industrial concerns have worked for regulation of railways to promote their own interests, to a large extent, regardless of the effect on the railways and the prosperity of the nation as a whole. Meantime, organized labor has acted more wisely. It has stood together as a class in advocating and opposing legislation, and in consequence has usually got what it has wanted. Can the business men of the country, little and big, be brought to a realization of the fact that, broadly speaking, their interests are mutual and not antagonistic, and that therefore they should stand together in advocating legislation which will be beneficial to them all and in securing the election of business men who are fitted to cope with business problems?

Inefficient Government and Public Ownership

The mayor of Chicago recently made an address at the Mayors' Convention in Philadelphia telling why American cities should own and operate public utilities. The government of Chicago, of which the mayor is the head, is charged with the duty of giving its citizens police protection. On November 29 the newspapers of Chicago reported that up to that time there had been 401 homicides in that city in the year 1914, of which 181 were known to have been murders. This is probably the worst record made in 1914 in any community in the civilized world. The government of Chicago demonstrates its incapacity to perform the primary duty of a government; and then in the open season for murders in his bailiwick the mayor sallies out to tell how much better it would be for the public to have government manage the street railways, the light and power plants, and so on, than to have them managed by corporations! Or, take another example: Except the much advertised boulevards, are there worse streets in any other large city than in Chicago? If the city cannot build and maintain good streets, how can it be assumed it could successfully maintain and operate street railways and other public utilities? Those who advocate municipal ownership of utilities usually advocate government ownership of railways, also. They ask, if our governments can successfully build and maintain highways, why could they not successfully build, maintain and operate railways? The answer is easy: they can't successfully build and maintain highways—or, at least, they don't. Most of our public highways, under government construction and maintenance, are among the worst in the world. The advocates of public ownership of public utilities and railways cite foreign experience in support of their argument. But the foreign cities and nations which are successful in managing public utilities and railways show their efficiency by also suppressing crime, by properly building and maintaining streets and highways and by performing their other functions satisfactorily. Their success, to such extent as they really are successful, in managing public utilities and railways is due to their general efficiency; and the failure of our governments with similar enterprises would be due to the same cause as their failure in almost everything they try to do now, viz., to their general inefficiency. And they will always be inefficient while they are run by men who show their statesmanship by constantly seeking to extend the functions of the governments instead of by devoting themselves to getting the present functions of the governments performed respectably.

FOLLOWING THE COMMISSION'S ADVICE

THE newspapers recently have published plans of a committee of western railroad commissioners, headed by Clifford Thorne, for opposing a "general advance" in rates by the western railways which Mr. Thorne last week told the Chicago papers would amount to $70,000,000 a year. Some papers also have expressed surprise at tariffs filed by the eastern railways advancing certain rates more than the 5 per cent which was allowed by the Interstate Commerce Commission on part of the tonnage of the Central Freight Association roads. All this shows misunderstanding or misrepresentation of what the railways are doing.

In its opinion in the eastern rate case the commission made three groups of suggestions as to how the carriers might increase their revenues in other ways than by a general advance. The first suggestion was for an increase in passenger fares. The second was "that all railroads in Official Classification territory examine carefully their freight rates, rules and regulations, with a view to increasing rates that are found to be clearly unremunerative, and modifying burdensome rules and regulations relating to minimum weights and similar matters where this may justly be done." The third suggestion related to free or special services, such as spotting cars, trap car service, lighterage, loading, unloading and storage, etc. "These three suggestions," the commission said, "will necessarily lead to some increase of the transportation charges. But the carriers' revenues will be increased more than the shippers' burdens, for these will be lessened through the removal thereby of many unjust discriminations."

All three of these suggestions have been promptly followed by the railroads: not only by those in Official Classification territory, but to a considerable extent also by the western roads, whose officers had been watchfully waiting for the decision for some indications as to how they could improve their own situation. Whereupon loud protests by Clifford Thorne, the American Meat Packers' Association, and possibly some others less vociferous. Mr. Thorne gets his $70,000,000 a year by taking about 10 per cent of the gross freight earnings of the western roads. But the western roads have not asked for a 10 per cent advance. Some western railroad officers have said they ought to have such an advance, and for a time a plan was considered for a general readjustment of rates on some traffic and a 10 per cent advance on the rest, together with the imposition of special charges for special services. This plan was outlined in a private and confidential letter issued by J. M. Johnson as chairman of a meeting of western traffic officers held last May, which Mr. Thorne in some way got hold of and published. The plan discussed in this letter was admittedly tentative, in anticipation of the decision of the commission in the eastern case.

That the roads are merely trying to carry out what they understand to be the policy favored by the commission is clearly shown by a comparison of the commission's opinion with the steps which the railways have taken. First, the 5 per cent advances allowed in Central Freight Association territory were put into effect, while the passenger departments of the eastern roads have been busy in revising their passenger fares upward in accordance with suggestion No. 1. Then the eastern roads began to "examine carefully their freight rates, rules and regulations, with a view to increasing rates that are found to be clearly unremunerative," and have transferred a considerable number of rates from exceptions back to the higher classification basis, from which they had been taken through force of competition. Both eastern and western roads also filed tariffs effective on December 1, advancing rates on grain, grain products, hay, packing house products and dressed meats, and tariffs have been filed from time to time imposing charges for trap car and other special services. The eastern roads have also filed advances in livestock rates, and the western roads have announced their intention of doing so in the near future, and other commodities in the "unremunerative" class are slated for advances. The western roads also are figuring on advancing their pas-

senger fares, but it will take some time to work out the tariffs.

While attempting to give the impression that all rates in the west are to be advanced, Mr. Thorne confined his specific remarks to the rates on grain and packing house products, in which he is especially interested as attorney for the shippers. Others who may not have the same means of access as Mr. Thorne to private and confidential letters may find some of the principal commodities to be raised by perusing certain tables in the opinion of the Interstate Commerce Commission which the commission referred to as follows: "The compilation prepared by the commission of answers of the carriers to our questions in this proceeding, calling for a statement of their earnings on representative traffic, discloses many rates which yield barely enough in revenue to pay adequately for the mere use of the equipment. Our compilation also shows that a large proportion of traffic in many commodities is yielding less than seven cents per loaded car-mile, although the record shows that railroad men ordinarily consider that the average earning per loaded car-mile should be more than twice that amount. Many unremunerative rates had their origin in fierce competition for traffic or under the menace of the big traffic of powerful shippers. Many such rates have doubtless been continued through ignorance of the loss they entail upon the carriers." The carriers were required to submit statements showing for interstate carload traffic in October, 1913, the relative earnings under existing rates on 30 different commodities moving in greatest volume, and as to representative movements, to establish, among other things, the ton-mile revenues, the car-mile earnings and other facts bearing upon the profitableness of the traffic. To this list the railroads added data for 15 additional commodities and the commission summarized the figures, remarking that they "show for similar lengths of haul, very wide variation in the car-mile earnings."

Of the 45 commodities listed the average net revenue per loaded car-mile (which the commission defined in a footnote as "gross revenue less certain amounts paid out for arbitraries or for special services") ranges from 6 to 28 cents, and the average rate per ton-mile from 2.73 mills to 12.34 mills. Thirty commodities in this table yield earnings of less than 14 cents per loaded car-mile. The lowest car-mile revenue in the list is shown for cattle, 6 cents, and for hogs and sheep the figure given is 7 cents. It is not surprising, therefore, to find that the eastern railways have filed tariffs advancing the rate on cattle from Chicago to New York from 28 to 33 cents, and on hogs and sheep in double-deck cars from 28 to 33 cents, and in single-deck cars from 35 to 38 cents per hundred pounds. The western roads also have announced their intention of advancing livestock rates by a maximum of 2½ cents from the Missouri river and 1 cent from the Mississippi river to Chicago.

Oats, in the commission's table, show car-mile earnings of 8 cents; feed, 8 cents; flour, 9 cents; hay, 9 cents; and corn, 11 cents, and tariffs have been filed advancing the rates on grain and grain products 1 cent, and on hay 2 cents per hundred pounds. Fresh meats show earnings of 10 cents and packing house products 11 cents per car mile. The rates on these commodities also were among the first to be advanced, the increases being, from the Missouri river to Chicago, 3½ cents, and from Chicago to New York, 5 cents.

Copper bullion shows car-mile earnings of 11 cents and a ton-mile revenue of only 2.73 mills. The rates on this commodity, which have long been the ground for some of the severest condemnation of the railways, are also to be substantially advanced.

The American Meat Packers' Association has filed a formal complaint against the advances in meat and livestock rates on the ground that its members are discriminated against by rates so much out of proportion to increases on other commodities. Representatives of the Chicago packers have given interviews, saying that they were willing to stand a general 5 per cent advance, but that they are opposed to a greater advance on their own commodities. It was to avoid just such complaints about the relations of rates that the eastern roads asked for a horizontal advance, but the packers do not mention in their interviews that their rates, by reason of their compelling power of large tonnage, have long been among the very lowest and most unfairly discriminatory in the United States, especially when the expedited service and the empty back-haul are considered. In fact, they are so low that the principal railways between Chicago and the Missouri river have for several years relinquished a great deal of the meat traffic to the Alton and the Wabash rather than meet the low and utterly indefensible rates maintained by these roads.

The railroads need greater revenues and are adopting the course that seems most likely to secure them. But the most salutary feature of the case is that the rates they are now seeking to raise ought to be raised even in the absence of financial necessity. It has been notorious for years that some rates have been so low as to work a discrimination against other traffic, and that these survivals of the days of rebating have seriously militated against efforts to place all rates on an adequate basis. The commission has warned the roads to come into court with clean hands before complaining of a general situation for which such practices as some of these low rates represent are largely responsible. That these unremunerative and discriminatory rates are now to be subjected to greater advances than others is but delayed justice.

HEAVIER LOADING OF CARS

UNDER the caption "Buy a Car of Coal," a little magazine issued by the Milwaukee-Western Fuel Company called "Screenings," recently published a short article giving advice to retail coal dealers which, if followed, would yield advantages to all concerned—the coal mine operator, the wholesaler, the retailer, the consumer and the railroad. It was pointed out that when a dealer places an order for 20 tons of coal the car in which it is hauled is only partially loaded, but is moved and delivered at practically as great expense as if it were loaded to capacity. A little later another partly loaded car is shipped, and so on until a time of car shortage comes, when the railroad becomes unable to deliver coal promptly. Then the retailer finds his bins empty, the consumer clamors for fuel, and the railroad is blamed for not delivering coal promptly! In other words, everybody suffers inconvenience, or worse, while railway equipment and other valuable facilities between the mine and the consumer have been used wastefully.

The traffic committee of the Lumbermen's Association of Chicago has been trying to educate shippers and users of lumber, also, as to the importance of heavier loading of cars. It is sending out circulars calling attention to the fact that as the commercial load of each car is increased the percentage of the dead weight to the total weight to be hauled is decreased. Therefore, the operating efficiency of the carriers is increased, while the car supply is conserved in times of car shortage.

We have referred in the past to the excellent results obtained by the Universal Portland Cement Company and the National Tube Company by urging their customers to order in full carloads. Work of this kind on the part of large industrial concerns is the most effective kind of co-operation with the railroads. Many shippers believe an advance in freight rates is desirable because it would enable the railroads to give more efficient service. Others believe that if the railroads would increase their efficiency they would not need an increase in rates. The campaign for heavier loading of cars affords an opportunity for all shippers of carload freight to help the railroads increase their efficiency in the best way possible; for in no single way could more be saved than by increasing the average load per car.

If coal shippers and other shippers of heavy commodities could be induced to load cars to their full capacity this would be of as much benefit to the roads as an increase in rates, because, like an increase in rates, it would increase earnings per car mile. There are many opportunities for economies by which the railroads cannot benefit without the co-operation of shippers; and this is one of the most important. If dealers order shipments

in amounts equal only to the low minimum carload weights that prevail, the railroads are obliged to furnish them cars for such light loading regardless of the resulting economic waste. Many carload minimums ought to be advanced, but to do so involves a long and most difficult procedure. The fact that at present there is a large surplus of freight cars rather than a shortage shows a need even greater than usual on the part of the roads for practicing the most rigid economy; and every form of assistance which the shippers give them will ultimately redound to the benefit of the shippers themselves.

ALABAMA GREAT SOUTHERN

THE Alabama Great Southern, operating a line running diagonally across the state of Alabama from Meridian, Miss., to Chattanooga, Tenn., is that important link in the Queen & Crescent route which connects the lines from Shreveport and New Orleans, La., to Meridian with that from Chattanooga to Cincinnati. It is thus a part of the Southern Railway System's north and south line from New Orleans and Mobile to Cincinnati, and of particular importance also in that it serves the prosperous and rapidly growing cities of Birmingham and Chattanooga. The company operates a total of 309 miles of road, 295 of which is main line, mostly single track. The road is in the rather enviable position of having no branches, the remainder of the 309 miles consisting of trackage rights over the Southern Railway and the Woodstock & Blocton. The gross operating revenues in the fiscal year 1914 were $5,385,307 as compared with $5,231,985 in 1913, the increase being almost entirely due to increased freight revenues of $3,662,745, as against $3,488,041 in 1913. Operating expenses, however, increased in greater proportion from $3,815,904 to $4,227,464, primarily because of an increase of $228,895, or 19.43 per cent, in maintenance of equipment expenses due to greater expenditure for maintenance of wooden freight cars and to charges for the retirement of light capacity cars. The net revenue of $1,151,237, therefore, was a decrease of $257,469. The net income after the payment of expenses, rentals, taxes and interest was $757,187, as compared with $1,134,620 in 1913. The company paid the regular 6 per cent dividends on its preferred stock, calling for $202,821, leaving a surplus for the year of $554,366 as compared with $931,799 in 1913, there having been no dividends paid on the common stock in either year.

The Alabama Great Southern's bonded debt, including equipment trust obligations of $998,507, was on June 30, 1914, $9,175,107, an average of $29,693 per mile. During the year there had been issued $2,500,000 5 per cent first consolidated mortgage bonds, part of a total authorized issue of $25,000,000, the portion sold at this time being to provide funds for additions, betterments and improvements in 1914, 1915 and 1916. The total funded debt, however, was increased but $2,245,507 over 1913, there having been $366,701 equipment trust obligations retired on maturity during the year. During 1914 the company spent a total of $306,321 for additions and betterments. It has recently spent large sums on signaling, structures and similar facilities. It has also begun to double track its main line and has already completed a section of double track from Birmingham northward. Perhaps the most important of its present projects, however, is the construction of a three mile line from Wauhatchie to the Lookout Mountain line of the Southern Railway leading to the terminal facilities at Chattanooga now reached by trackage rights over the Nashville, Chattanooga & St. Louis. The directors, with these improvements in mind and feeling the need of additional capital, proposed late in 1913 to make a new first consolidated mortgage to secure $25,000,000 of 30-year bonds bearing interest not exceeding 5 per cent, $2,500,000 of these bonds to be issued at once as noted above, and the remainder to be issued as follows: $5,686,600 to refund the 5 per cent first and general mortgage bonds maturing in 1927; $9,000,000 to provide for future double tracking and for the construction of the line from Wauhatchie to the Southern's Lookout mountain line, to be issued as the work is done, and $7,813,400 for general improvements in and after 1917 at about $500,000 a year. Largely because of the sale of the new issue of bonds there was an increase in the amount of cash on hand from $611,307 in 1913 to $2,789,464 in 1914. The company at the end of the year had a surplus of $2,893,714.

The freight traffic of the Alabama Great Southern consists mainly of lumber, coal and ore, and articles of manufacture, principally iron and steel. In the fiscal year ended June 30, 1914, it carried a total of 3,742,000 tons of revenue freight, as compared with 3,690,000 tons in 1913. The total revenue ton miles were 575,047,000, as against 538,502,000, and the average distance each ton was carried increased from 145.95 to 153.66 miles. The company's freight train revenue per mile of road likewise increased from $11,273 to $11,838, and the total operating revenue per mile of road from $16,910 to $17,405. There was an increase in revenue trainloading during the year from 418 to 422; the revenue car loading per loaded car averaged 20 tons.

The passenger traffic in the two years was about the same. In 1914 there were 1,018,000 passengers carried as compared with 1,009,000 in 1913. The passenger receipts were $1,298,781 in 1914, and in 1913, $1,291,317. In 1914 the average distance each passenger was carried was 59.55 miles; the average revenue per mile 2.14 cents, and the passenger-train revenue per mile of road, $4,971.

The following table shows the principal figures for operation in 1914 as compared with 1913:

	1914	1913
Average mileage operated	309	309
Freight revenue	$3,662,745	$3,488,041
Passenger revenue	1,298,781	1,291,317
Total operating revenues	5,385,307	5,231,985
Maint. of way and structures	688,650	627,364
Maint. of equipment	1,406,891	1,177,997
Traffic expenses	162,171	154,664
Transportation expenses	1,832,894	1,736,409
General expenses	136,858	119,471
Total operating expenses	4,227,464	3,815,905
Taxes	189,857	176,041
Operating income	961,380	1,232,664
Gross income	1,338,882	1,719,098
Net income	757,187	1,134,620
Dividends	202,821	202,821
Surplus	554,366	931,799

COLORADO & SOUTHERN

THE strike in the coal mines in Colorado was, of course, the dominant factor in the history of the Colorado & Southern in the fiscal year ended June 30, 1914. The coal tonnage, which furnished 29.39 per cent of the total tonnage in 1913 and the revenue from which was 24.93 per cent of the total freight revenue in that year, furnished but 21.21 per cent of the total tonnage in 1914, and the revenue from this business amounted to but 18.03 per cent of the total revenue. Not only did the strike in the coal mines cause a loss in freight revenue to the Colorado & Southern, but it also very much increased operating expenses, it being necessary to buy fuel coal from mines not on the lines of the company. Fuel cost the Colorado & Southern 17.2 cents per locomotive-mile in 1913, and 22.4 cents per locomotive-mile in 1914.

The Colorado & Southern operates 1,866 miles of road, of which 906 miles is in Colorado and 711 miles in Texas. In 1914 the road earned $7,083 per mile as compared with $8,152 per mile in 1913. Of its total operating revenues under normal conditions about 70 per cent is freight revenue and 22 per cent passenger revenue. Under normal conditions about 63 per cent of its total freight tonnage is furnished by products of mines and about 16 per cent by products of agriculture.

Total operating revenues in 1914 amounted to $13,223,000 as compared with $15,078,000 in 1913. Operating expenses amounted to $9,746,000 as against $10,623,000 the year before. All of the saving which was made was in maintenance. After the payment of interest and 2 per cent each on first and second preferred there was a surplus in 1914 of but $66,000, while in 1913, after the payment of 1 per cent on the common and 4 per cent each on the first and second preferred, there was a surplus of $675,000.

The following table shows the percentage of each class of expenses to total operating revenues:

	1914	1913
Maintenance of way and structures	13.75	12.65
Maintenance of equipment	16.52	20.64
Traffic expenses	1.64	1.53
Transportation expenses	38.23	32.50
General expenses	3.57	3.14
Total	73.71	70.45

The smaller expenditure on maintenance of equipment was probably in part the result of a considerably smaller mileage made by both locomotives and freight-train cars. The increase in transportation expenses, despite a saving in train mileage, was due to the higher cost of fuel already mentioned, and to very severe winter weather, which made operation more difficult, etc.

The total number of tons of freight carried in 1914 was 6,125,000, a decrease of 1,328,000 from 1913, and the ton mileage was further decreased by a much shorter average haul, 143 miles in 1914 as against 154 miles in 1913. Apparently, therefore, the Colorado & Southern gets a long haul on its coal. The smaller proportion of coal tonnage, however, made the average ton-mile rate higher in 1914—1.033 cents—than in 1913—0.944 cents. With a decrease of about 24 per cent in ton mileage, the total mileage of freight locomotives was 3,079,000 in 1914 as against 3,740,000 in 1913, a decrease of 17 per cent. Loaded freight car mileage was 45,972,000 in 1914 as against 55,373,000 in 1913, a decrease of 9,401,000. Empty car mileage was 22,704,000 in 1914 as against 25,785,000 in 1913, a decrease of 3,081,000. The falling off in coal tonnage is reflected in the average trainload, which in 1914 was, for standard gage lines, 302 tons as against 332 tons in 1913.

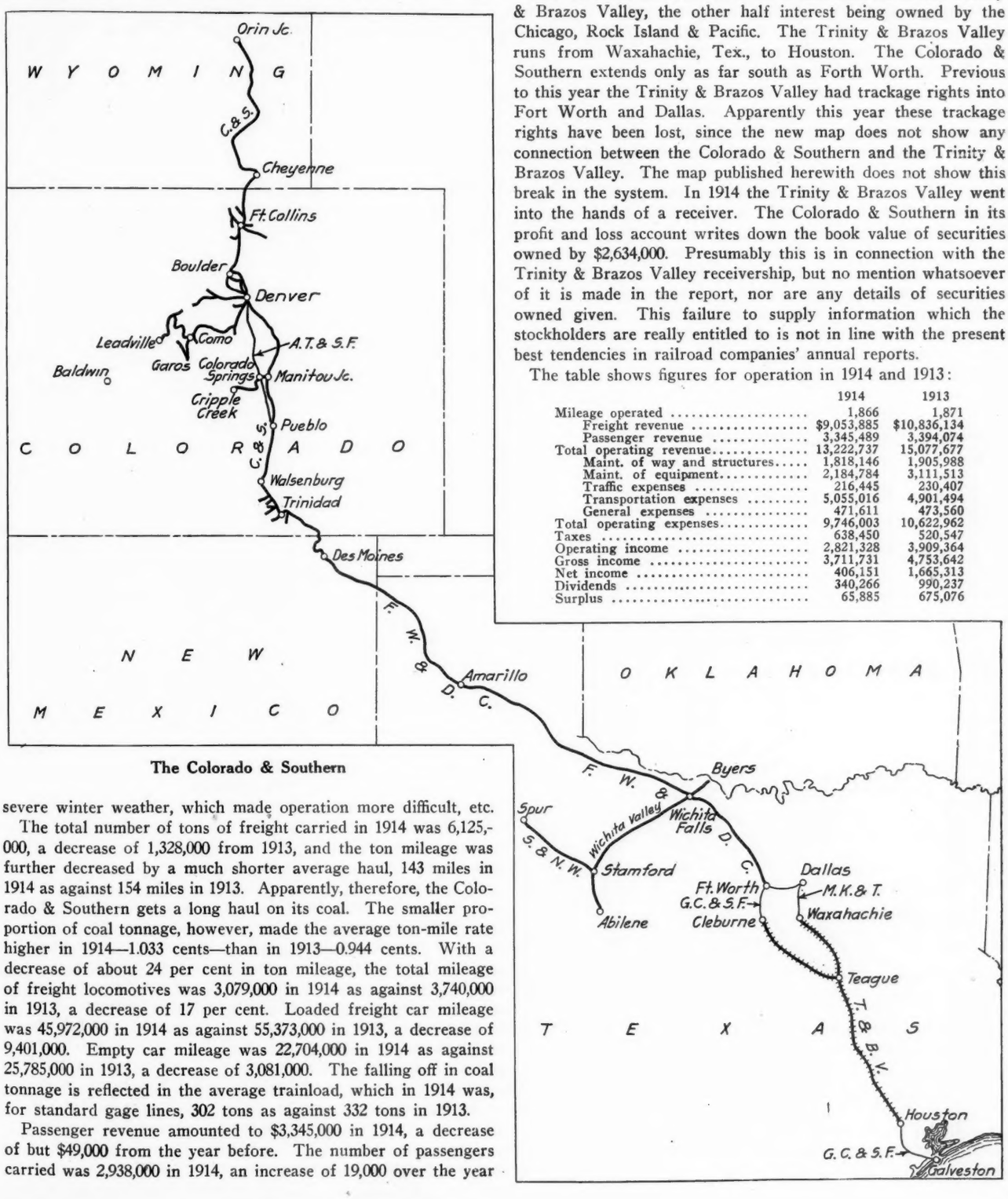
Passenger revenue amounted to $3,345,000 in 1914, a decrease of but $49,000 from the year before. The number of passengers carried was 2,938,000 in 1914, an increase of 19,000 over the year before; but the average passenger journey was 44 miles in 1914 as against 46 miles in the previous year. The receipts per passenger per mile were 2.597 cents in 1914 and 2.555 cents in 1913.

No securities were sold by the Colorado & Southern in 1914, and the outstanding funded debt in the hands of the public decreased by $407,000, principally because of the payment of maturing equipment trust certificates. A total of $166,000 was spent for additions and betterments. At the end of the year the company had on hand $663,000 cash, with total working liabilities of $1,722,000, which included $116,000 loans and bills payable. At the beginning of the year the company had $908,000 cash, no loans and bills payable, and $1,508,000 total working liabilities.

The Colorado & Southern owns a half interest in the Trinity & Brazos Valley, the other half interest being owned by the Chicago, Rock Island & Pacific. The Trinity & Brazos Valley runs from Waxahachie, Tex., to Houston. The Colorado & Southern extends only as far south as Forth Worth. Previous to this year the Trinity & Brazos Valley had trackage rights into Fort Worth and Dallas. Apparently this year these trackage rights have been lost, since the new map does not show any connection between the Colorado & Southern and the Trinity & Brazos Valley. The map published herewith does not show this break in the system. In 1914 the Trinity & Brazos Valley went into the hands of a receiver. The Colorado & Southern in its profit and loss account writes down the book value of securities owned by $2,634,000. Presumably this is in connection with the Trinity & Brazos Valley receivership, but no mention whatsoever of it is made in the report, nor are any details of securities owned given. This failure to supply information which the stockholders are really entitled to is not in line with the present best tendencies in railroad companies' annual reports.

The table shows figures for operation in 1914 and 1913:

	1914	1913
Mileage operated	1,866	1,871
Freight revenue	$9,053,885	$10,836,134
Passenger revenue	3,345,489	3,394,074
Total operating revenue	13,222,737	15,077,677
Maint. of way and structures	1,818,146	1,905,988
Maint. of equipment	2,184,784	3,111,513
Traffic expenses	216,445	230,407
Transportation expenses	5,055,016	4,901,494
General expenses	471,611	473,560
Total operating expenses	9,746,003	10,622,962
Taxes	638,450	520,547
Operating income	2,821,328	3,909,364
Gross income	3,711,731	4,753,642
Net income	406,151	1,665,313
Dividends	340,266	990,237
Surplus	65,885	675,076



The Colorado & Southern

Letters to the Editor

THE DEFEAT OF THE MISSOURI FULL CREW LAW

St. Joseph, Mo.

To the Editor of the Railway Age Gazette:

The Missouri full-crew law was passed at the last session of the legislature, held at Jefferson City on January 1, 1913. The bill ran the usual gamut of such legislation, being considered, referred, reported favorably, and finally passed by both houses and signed by the governor. The legislation was urged by an active committee of the Brotherhood of Railway Trainmen, and was followed from committee to committee with great vigilance. Members of the operating departments of the various railroads were before the committees and explained the utter uselessness of an extra man on trains of 40 cars and over. The governor signed the bill after a strong protest by the railroads.

The railroads have an extra man on all freight trains doing a local business. The passenger trains have as a rule been equipped as provided for by the first section of the law.

The hardship of the law lay in its provision that on trains of 40 cars and more an extra brakeman should be employed. The average pay of a brakeman in Missouri is about $90 per month. The arguments advanced before the legislative committees by the representatives of the railroads, such as "No service to be performed by an extra man; trains were already fully equipped; the engineer and fireman, the conductor and flagman and brakeman were all that could possibly be used both for safety and efficiency," were of no avail. Neither did the fact that the railroads were in financial distress and that their business was on the decline have any weight with the legislators, whose pledge it is thought was demanded and given in some instances in advance of election to support such a bill.

With the possibility of half a million dollars increased expenses annually under this law, the railroads began to take notice and cast about for relief. A meeting was called and the various counsel of the Missouri lines decided to advise their respective companies to invoke that beneficent but heretofore dreaded provision of our constitution known as the "initiative and referendum," and it proved a timely means of escape from this unjust legislation in Missouri. The good effect is being felt all over the country, not in the spirit of hostility towards honest labor or honest organization of trainmen, but against such unwise and harmful legislation as is generally urged by agitators who are members of the brotherhood out of a job.

There was no need of this extra man on trains of 40 cars or more; a through train of 40 cars requires the same help as one of 30 or 35 cars, and no more. It isn't the length of a street car, or the length of a hoe-handle that determines the number of men that can or should be employed. The test is, what duties are there to perform for safety and efficiency, and when a full assignment to these duties is made, an extra man is a bother, not a helper.

I quote from the Railroad Trainman, July, 1914, in an article on "The Full Crew Bill in Missouri":

> So everywhere it can be done, turn loose Vox Populi, Veritas, Pro Bono Publico, Ish Ka Bibbel, Sinker, and all the rest of them in an effort to convert public sympathy and support to our purposes and have everybody understand that what helps us, helps them.

This method was literally carried out by the Brotherhood to the extent of using the picture shows in cities in which to exhibit the most distressing but imaginary scenes of accident and injury to employees, causing death and maiming for lack of enough brakemen; also exhibits on billboards all over the state, larger than the side of a car, on which were statements, such as, "One Man Killed or Injured Every Seven Minutes," and many other scarecrow devices. The railroads answered these implied accusations and overdrawn pictures by simply stating facts showing fewer accidents on trains of 40 cars and over than on trains of less than 40 cars; also by showing that less than 50 deaths of employees had occurred on all roads in Missouri within one year, and that not a single accident was occasioned on account of too few brakemen.

The people saw through the "overplay" and resented the attempt of the brotherhood to dictate the number of men that should be employed from their organization in an enterprise in which the brotherhood had no pecuniary interest. It seemed to many voters quite burden enough for the government to presume to fix terms for the detail management of railroads as to rates, etc., without assuming any responsibility for losses. The railroads showed the Missouri farmer, the Missouri merchant, mechanic and others the issue, and they caught the spirit of fair play as they always will when properly approached. Besides, there were many employees of the railroads who voted against the bill becoming a law, men whose positions on the roads enabled them to judge of the utter lack of necessity for the extra man.

It is impossible in this short space to explain the benefits from the work done in this campaign on the full crew bill. The railroad situation generally has been laid bare to the people of this state. Shippers and passengers have become interested as never before. What the railroads have done and are now trying to do for the state was made plain; the enormous amount of money derived from railroads as citizens of the state by taxation for school and other purposes; indispensible service to both shipper and passenger and the low prices for the service; the three great markets of St. Louis, Kansas City and St. Joseph maintained by the railroads; and finally, the railroads showed the voters how absurd it was to accuse the managers of the railroads of preferring to kill human beings and incur large damage suits and judgments rather than put an extra man on a through freight train when, and if, by so doing, humanity and economy would be served. Then the unanswerable argument that our public service commission had power to put an extra man on when and where needed, clinched the nail.

While the result might have been the same had no opposition been urged by the railroads; that is, while the weight of the full crew bill together with that of the other dozen amendments might have snowed it under along with the rest, still one cannot always tell for sure, and the fight the railroads made was worth the effort in more than a dozen other different ways, as time will prove.

Our constitution and law in reference to the initiative and referendum requires that a petition containing the names of 5 per cent of the voters in at least two-thirds of the congressional districts of Missouri shall be filed with the secretary of state within 90 days after the passage of the law, in order to refer an act which has been passed by the legislature, to the voters at the next general election. The law further provides that an act so referred shall not become a law unless a majority of those voting on the proposition is in favor of such law. The complete returns have not been published by the secretary of state yet, but I am advised that about 80 per cent of all voters exercised a discriminating judgment on this and other amendments. This is shown by the fact that no two amendments got anything like the same vote either in favor of or against it.

O. M. Spencer,
General Solicitor, Chicago, Burlington & Quincy.

[Official returns of the vote show that there were 159,593 votes for and 324,085 against the law, making a plurality against it of 164,492. The returns by counties also show that the bill was defeated in 102 out of the 116 counties of the state, and that contrary to the expectations of the railroad managers, it received an overwhelming defeat even in cities where it was believed that the union labor vote might prevail, and the opposition was by no means confined to the agricultural counties. Even St. Louis, where the brotherhood looked for a big majority in favor of the bill, went against it by 18,417, although in Kansas City and St. Joseph it carried. Outside of the three principal cities, St. Louis, Kansas City and St. Joseph, the measure received only about 86,000 votes in the entire state.—Editor.]

Construction of the Gwynn's Falls Arch Bridge

Four-Track Concrete Structure on Pennsylvania Railroad at Baltimore (Md.) Being Built in Two Sections

Approximately two-thirds of the Philadelphia, Baltimore & Washington (P. R. R.) line between Baltimore and Washington has four tracks, and the heavy traffic handled makes it desirable to bring the remaining third of the line to this standard as soon as possible. As one step in this development the old double-track iron bridge over Gwynn's Falls and a single-track line of the Western Maryland, near the southwestern edge of the city of Baltimore, which has limited the capacity of the line entering the city, is being replaced by a four-track reinforced concrete arch structure. The old bridge consisted of four spans of link and pin deck trusses on stone piers. The bridge was too light structurally for the traffic and the masonry was badly cracked, making it practically necessary to replace it at an early date.

Concreting the Arch Ring and Spandrel Walls of the First Half Showing the Old Steel Bridge in the Background

This work is being handled in two stages. Beginning early in 1913, the first section, wide enough for two tracks, was built just far enough west of the old structure to clear it. Traffic was turned over this half of the new bridge on December 15, 1913. The old bridge was then removed, and the east half of the new structure is now being completed.

The traffic south of Gwynn's Run, the first station north of the bridge, averages about 36 freight and 73 passenger trains per day, and, including light engines used as helpers on southbound tonnage freight trains, the total number of movements over the old bridge has reached a maximum of about 165 per day. The construction work had to be handled without interruption to this traffic.

DESIGN

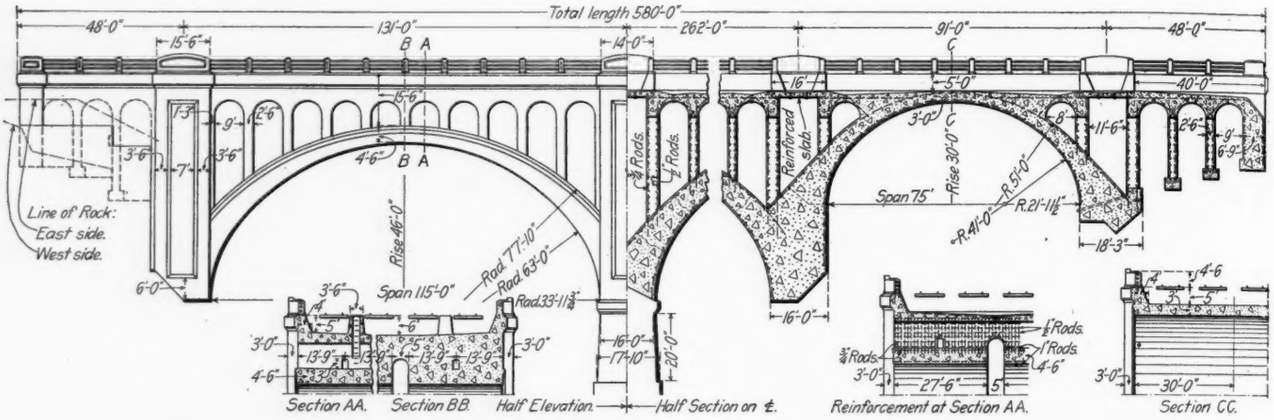
The new bridge has a total length of 580 ft. and a width of 61 ft., and consists of three 115-ft. and one 75-ft. reinforced concrete arch spans. The location of the abutments and the alinement of the bridge are practically the same as in the old structure. The height of the bridge, about 90 ft. from the base of the rail to the bottom of the footings, and the desire to provide an attractive looking structure, were important factors in the choice of the type of structure. The natural conditions at the site are favorable to an arch bridge as the sides of the valley have steep slopes and rock can be easily reached in all foundations.

The abutments are of the hollow type, their length parallel to the track being 40 ft. The tracks over the abutments are carried on three 9-ft. arches supported by intermediate cross walls in each abutment. These arches are similar to the spandrel arches over the main spans, with the exception that their ends are closed by the side walls of the abutment. The three piers rest on footings 19 ft. 10 in. wide by 66 ft. long, and are of solid concrete up to the intersection of the extradosal lines. Above this, the piers are hollow, the ends being closed by pilasters which rest on offsets at the level of the springing line. These pilasters are entirely independent of the pier walls, being tied in by rods to the floor slab which spans the width of the piers at the top. The minimum width of piers is 16 ft. The arch rings have a three-centered intrados and a semi-circular extrados. In the 115-ft. spans the rise is 46 ft. and the crown thickness

4 ft. 6 in., while in the 75-ft. span the rise is 30 ft. and the crown thickness 3 ft. The spandrel arches have a span of 9 ft. and a wall thickness of 2 ft. 6 in., except at the piers, where the thickness is increased to 3 ft. 6 in.

The main arch rings are separated into two parts along the center line of the bridge by an open space 5 ft. wide extending down to the haunches and up through the walls of the superimposed arches to a level with the springing line of these small arches. The minimum thickness of concrete over the spandrel arches is 2 ft. at the 6-in. drain on the center line of the bridge over each small arch. The thickness of the floor is increased to 3 ft. along both edges of the bridge. The elevation of the base of rail is 5 ft. above the highest elevation of the floor. The tops of the main arches are level transversely, the drainage from the roadway being carried through small openings 2 ft. wide by 3 ft. high in the arch walls. The drainage, which is carried down over the extrados of the arch ring into the hollow pier, is led to one end of the pier by the pitch of 1 ft. and is there carried through the arch ring and discharged. Four manholes are provided in the floor, two over the central span and one over each abutment, allowing access to the space above the main arches.

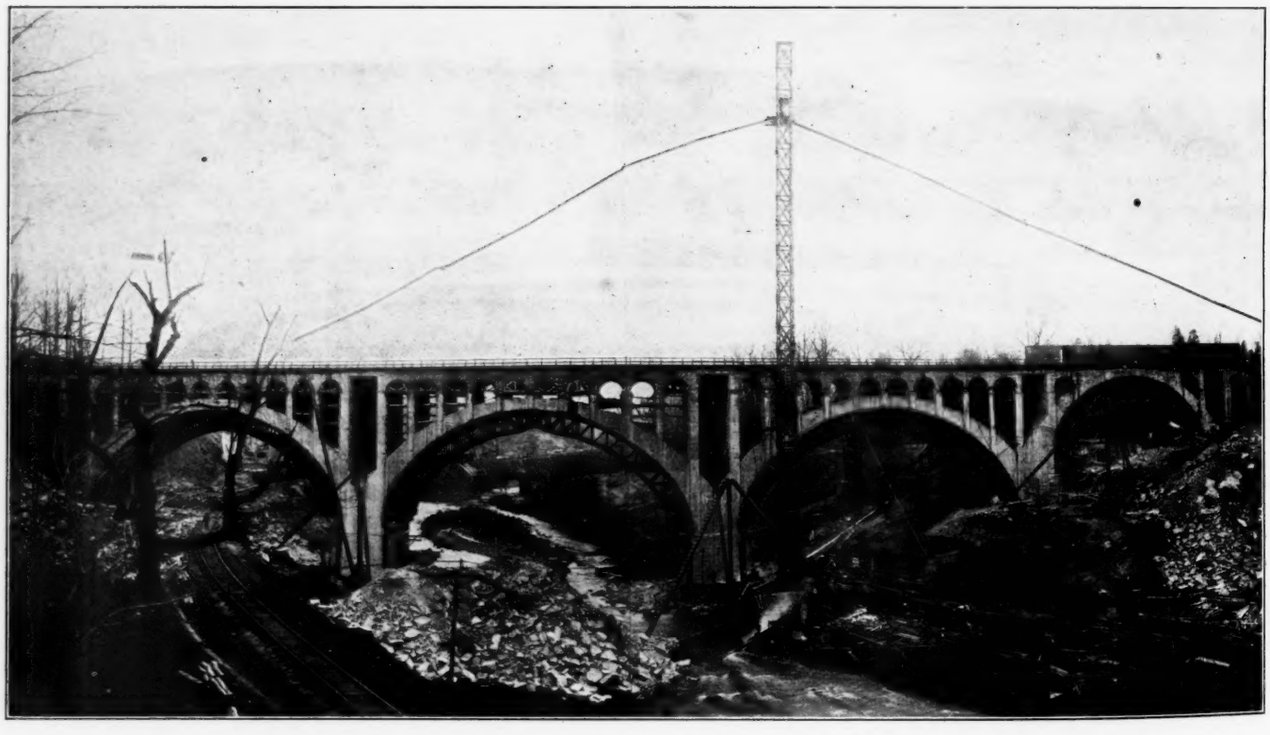
A 1½-in. expansion joint is provided along each side of the 12-ft. slabs which cover the hollow piers. Two expansion joints



Elevation and Sections of Four-Track, Four-Span Reinforced Concrete Arch Bridge Near Baltimore

are also provided in the parapet walls over each arch. The floor over each arch is continuous. The balustrade consists of concrete posts 18 in. square supporting three rails of 3½ in. galvanized pipe.

All concrete in the structure is a 1:2:4 mixture, the total quantity amounting to 28,000 cu. yd. with 470 tons of reinforcing steel.



East Side of First Half Completed, Showing Concrete Distributing Tower in Position for Work on Second Half

CONSTRUCTION

A large part of the material used in construction was handled by a cableway having a capacity of 5 tons. The span of the cable was 650 ft. and the supporting towers were 60 ft. high. A 1¼-in. cable with a Flory carriage was used. The contractor

also installed a saw-mill and shop adjacent to the stream near the bridge site and two steam plants for operating the mixer, concrete hoist and cable engine.

The foundations were excavated through rock, most of which required blasting. A stiff-leg derrick and clam shell bucket were used to handle the excavated material. The footings were carried down about 7 ft. at the deepest point, open cofferdams being used in these pits. The water in Gwynn's Falls is normally very low, having a depth at the bridge site of about 14 in. It is subject to high stages, however, which, it is reported, reach a maximum of 25 ft. Only one of the piers was located in the channel, from which water was diverted during the excavation and the placing of the concrete. In the erection of the main arch rings, the contractor used Blaw steel centers consisting of six three-hinged steel arches for each span. Derricks were used in conjunction with the cableway to place these centers, which were erected one rib at a time. The centers were

View Along Center Line of First Half, Showing Material Cableway and Concrete Distributing Tower

supported by six-post timber bents under each side, each post consisting of two 12-in. by 12-in. timbers. The wall plates were 6-in. by 24-in. timbers on which 4-in. wedging was used to adjust the position of the centers. After finishing the first half of the bridge, the centers were struck and allowed to remain in that position until needed on the second half, when they were rolled laterally into the new position without dismantling. The Blaw semi-circular steel forms were used for most of the spandrel arches, although as the number of forms in use was not sufficient to push the work as rapidly as desired, some timber forms were used in addition to the steel. Blaw special forms of galvanized iron were used for the parapet wall. All form material for the portion above the main arch ring was handled by the cableway.

The concrete mixing plant was located west of the bridge on the north side of the valley. A siding from the main line was located over sand and gravel storage bins into which the material could be dumped directly from the cars. A conveyor belt transferred the sand and gravel from the storage bins to the measuring hoppers over the mixer. The cement house was located so that the same belt could handle cement, the sacks being chuted into the house from cars on the siding above. The concrete was mixed in a Milwaukee 1-yd. machine.

A timber frame tower about 140 ft. high was used to elevate the concrete at the mixer. This tower was located about opposite the center of the first long span on the west side. The mixer was operated from the same boiler plant as the cableway engine, and another boiler was installed to run the concrete hoist. An electric motor drive was installed for the belt conveyor. A system of Lakewood chutes, with line gates, was used for distributing all of the concrete in the lower part of the structure. These chutes were supported by 2-in. cables, the minimum pitch being about 2¼ in. per foot. The maximum distance over which concrete was handled in these chutes was about 350 ft. The concrete in the upper portion of the structure at the south end was handled in buckets by the cableway, as this was more economical than to extend the tower to a height sufficient to reach

The Forms in Place for One of the Long Spans Showing Steel Arch Centers

that elevation with chutes. This mixing and distributing plant handled an average of about 30 yd. of concrete per hour, and in exceptional cases 40 yd.

The slabs over the hollow piers were designed to be cast in a slab yard and placed in 6-ft sections. The plan was changed, however, in order to allow the contractor to cast them in place. The only bond rods which were left extending from the first section to connect up with the second half were in the floor over the spandrel arches and in the upper part of the arch ring in the 75-ft. span, where the ring itself forms the floor of the bridge. The concrete in the arches was allowed to set 28 days and when the centers were struck no deflection was perceptible.

After the completion of the first section of the bridge, the cableway was moved over for use in dismantling the old bridge. False work was built up under the old structure, five bents being necessary in each span on account of the height of the bridge, which was about 80 ft. to the underside of the highest truss. The deck and the bracing of the old structure were first removed, the posts were cut from the floor beams by knocking off the rivets, and each bent was lowered to the ground by the cable

where it was divided into the separate members. The old iron, which was of no value except as scrap, was then loaded on cars for removal. After the iron superstructure was taken down the old piers were blasted out.

During the second stage of the work the mixer plant was left in the same position west of the bridge on account of the expense that would have been incurred in moving it. The distributing tower was dismantled and a new tower 192 ft. high built on the opposite side of the bridge. The concrete from the mixing plant was allowed to run by gravity from the mixer through a long chute under the completed portion of the bridge, to the foot of the distributing tower. The other operations in the construction of the second half are similar to those described for the first stage.

This work is being handled under the direction of A. C. Shand, chief engineer, E. B. Temple assistant chief engineer, and J. W. Craig, assistant engineer. The contract is being executed by the estate of Charles McDermott, Philadelphia.

THE DEVELOPMENT OF LONG ISLAND*

By H. B. Fullerton

Director of Agricultural Development, Long Island Railroad

Experimental or demonstration farms offer far and away the most convincing and most rapid means of increasing crop production and introducing crop diversification, hence increasing agricultural tonnage and lengthening greatly the period of revenue yield from farming sections.

Ralph Peters, president of the Long Island, when he took charge of this portion of the Pennsylvania system found conditions of a truly unique character; at the west end of his territory the great cities of Brooklyn and New York; along the Atlantic ocean and the Long Island sound shore, a continuous line of overlapping villages, yet occupying merely a fringe of shore line, while the entire center of this territory was but an undeveloped particularly depressing acreage of "scrub oak waste" or "pine barren"—approximately 250,000 acres purchasable at from $1 to $6 per acre. Although but 30 to 70 miles from the biggest city in the United States; although traversed by three parallel lines of railroad, seldom 5 miles apart; although within easy driving distance of prosperous villages of goodly size, this acreage was not alone a non-productive area, but an untaxed drag and hold-back on the island. Without raw material of any description, without inhabitants, save tiny expiring hamlets at long distances, industrial development was impracticable.

National and state experts had for years pronounced this land valueless for agriculture and this opinion had existed through generations of Long Islanders, despite the fact that the undergrowth and "sprout" growth from oak, hickory, chestnut and ash stumpage were of record-breaking lengths and vigor, proclaiming ideal conditions of soil and climate.

Accepting nature's practical demonstration as more reliable than man's opinions or theories, President Peters purchased the smallest acreage of "scrub-oak-waste" obtainable, 18 acres located south of Wading river on the Long Island Sound side of the island, on September 7, 1905. Clearing was started and in 60 days an excellent stand of rye covered the 10 acres of land, which for nearly three centuries had been deemed worthless. No chemical fertilizer was used, city stable manure alone being applied to introduce the vegetable matter which had been destroyed by forest fires which for a period of 150 years had consumed the leaves. The cost per acre of introducing this manure substitute for nature's leaf mold or humus was but $9.50.

In the early spring of 1906 the rye was plowed under, and seven months after the first stump was dynamited out of the "scrub-oak-waste" early vegetables of the choicest variety were shipped to the editors of metropolitan dailies who were guests of the railroad when the initial blow was struck; hence, these editors being fully qualified and armed with personal recollections of the original depressing showing, wrote, each in accord with his personality, stories proclaiming Long Island's many agricultural capabilities and residential attractiveness. Advertising in unpurchasable space of dailies, weeklies, and monthlies has continued without let-up unto the present time.

Within seven months after the establishment of the first demonstration farm, practical results were secured, the first purchase and development on Long Island being made by a long time resident of Oregon. Within four years, 4,200 families were added to the island's agricultural population, the great majority of them settling on the cheaper lands of the undeveloped territory, all without a single known exception making good and so advising those in charge of the work by letter and in person. The combination of additional agriculturists and the adoption of methods which had proved practical and economical, showed an increase in agricultural tonnage of 300 per cent within four years; to this, of course, must be added the increased passenger and express revenue. Besides the agricultural population drawn to the island, the widespread heralding of the demonstration farms, marked successes with vegetables, fruits and nuts, deemed ungrowable in many sections of the United States, particularly in the North, attracted the attention of foreign capitalists, as well as those of America and Canada. So great was the throng of visitors arriving daily and greatly interfering with the systematic handling of the intricate problem that two days per week were set apart as visitors' day. "Waste lands" which had been on the market for 150 years without purchasers, sold at an average price of $50 an acre and upwards. Estate developments sent up the shore line territory from $22 to as high as $7,000 per acre, with sales being made continually at prices running between $300 and $1,000 for hilly land, of least value for agricultural purposes, but of attractive condition to develop home sites or great estates.

The older sections, where the soil had been continually tilled since 1642 were beginning to show startling crop reductions (identical with those that are responsible for the abandoned farms of New England and New York State), reducing, for example, the normal potato yield of 300 bushels to the acre, down as low as 30 bushels, and sometimes 8 or 9 bushels less than the amount of seed potatoes planted. The use of humus and of lime having proved crop increasers on the railroad's demonstration farm warranted trial by the Long Island soil tillers and that source of greatest injury in the agricultural sections of the East was checked and both last year and this all records of crop production were broken by great numbers of old-time Long Islanders and new-come foreigners.

Successes with high-quality apples, peaches, pears, plums, cherries, grapes, bush and vine fruits, resulted in the establishment of great numbers of small orchards and many quite extensive ones and of innumerable vineyards and berry farms, with most satisfactory showing in the annual freight and express receipts. The former difficult situation of having practically the entire freight haul of agricultural products forced into six weeks (at the utmost three months), was helped by rotation and introduction of new crops, which developed a traffic extending from rhubarb, asparagus and lettuce of early spring, through summer vegetables and late winter crops, such as the big paying Brussels sprouts, which are frequently gathered on Long Island from the open fields in February. We developed the "Long Island home hamper," a common crate containing six 4-qt. boxes, which were filled with an assortment of vegetables, fruit, berries, etc., as they came into season. These hampers were "created" by those in charge of the work with various objects in view, one being the development of a dependable market yielding a worth-while revenue to our agricultural community.

A trial shipment of these "home hampers" as we named them, in 1906, fairly overwhelmed us with the results obtained. They filled a long-felt want of the city consumer, and without publicity became an instant success, saving the consumers from 75 cents to $3 per hamper, according to their own reports, and yielding to the producer 98 cents net for the contents of the

*Abstract of a paper presented before the Railway Development Association, Chicago, November 10, 1914.

hamper, instead of an average of six cents obtained when shipment was made in bulk through the usual channels.

The next method adopted to keep the development work up to the highest efficiency was a little publication that first was issued as a fortnightly, and a little later as a monthly, its object being to place before Long Islanders the results obtained and methods pursued in the trying out of various plants, information as to various sources of seed, implements, packages, spray material, sources of supply, and publishing without any restrictions whatever the results, favorable or unfavorable, and furnishing names and addresses freely, noting failures, as well as successes, giving causes where causes could be definitely located, noting weather conditions, yields, things to be avoided, precautions to be taken; noting where large and small plots of land could be obtained, giving the name of the owners and prices, also names of prospective buyers of various size tracts of land and their personal predilections. The name selected for this little pamphlet was "The Long Island Agronomist."

Fairs were attended and exhibits entered in competition. The fact that the Long Island Railroad demonstration farm won a goodly majority of "firsts" impressed local people who devoted their entire time, as a rule, to one crop, while the "railroad farmers" were known to have grown hundreds (in 1913 and 1914, for example, 982 varieties) in one year's growing season.

The demonstration farms were represented in city shows and with equal success against great estates and expert market gardeners and fruit growers. At the state fair, Long Island won 143 prizes, covering a remarkably varied line—apples, peaches, plums, pears, grapes of many varieties, field crops, corn, grains—a big line of vegetable growth including French artichokes, endive, "Romaine," Spanish onions, nuts, etc.; it even received a gold medal for butter, which was won against a large number of estates, community creameries and individual dairies of long standing with top-notch reputations. The score, 99½ per cent, the highest ever obtained anywhere, placed Long Island in the dollar-a-pound class. Agricultural colleges and schools requested us to talk to their classes and this has been a continuous performance throughout the decade, with the result that many of our hearers based their theses upon the copiously illustrated practices and crops raised, placing before future classes for many years a most attractive picture of Long Island capabilities. As the bulk of these students have joined the dignified army of professors we find frequent evidence that they are teaching the possibilities and capabilities of Long Island continuously and this is helping along the good work.

The Long Island's agricultural department has found in 10 years of uninterrupted application, close study and investigation that quick action and thoroughly convincing and undeniable results can be obtained at the lowest cost per ton by the establishment of a strictly practical economically handled farm, following as closely as possible commonsense farm practice and with "the latch-string always out." Our experience has firmly convinced us that upon this demonstration farm the director of agricultural development should have his home and his office. This man must primarily be a nature lover. He must prefer farm life to all other professions. The ideal director is undoubtedly one who has had a thorough practical agricultural education, secured from those as yet scarce American agricultural colleges, whose class-room work is invariably firmly impressed and made permanent by practical out-door work and demonstration. Ralph Peters, our president, has made use of a comprehensive phrase, "Writing and talking will not do; we must deliver the goods." The demonstration farmers delivered the goods and the railroad has gained not only in freight tonnage, but in every one of its revenue yielders.

RAILWAY STRIKE IN BELGIUM.—It is reported from Amsterdam that the employees on the Belgium railways have gone on strike and refused to do work for the Germans. Many employees have started for England, and others have sought work on the French railways.

RAILWAY AFFAIRS IN OTHER COUNTRIES

After three years' work the Munster-Grenchenberg tunnel, the longest now under construction in Swiss territory, was successfully and uneventfully pierced on October 27 at 4 p.m. The tunnel, which runs through the Jura range, is 5⅝ miles long, as compared with the Hauenstein base tunnel, pierced on July 10, which is 5 miles, 94 yd. in length. The capital involved is $5,000,000, mostly French, the Eastern Railway of France, in particular, being largely interested. The new line, of which the Munster-Grenchenberg tunnel is a part, is about eight miles long and will be managed by the Swiss Federal railways. It will shorten by over 10½ miles the distance via Delle to Lötschberg, the time saved being 40 minutes. The tunnel will have a single track and the motive power used will be steam. No special engineering difficulties were encountered in its construction, but there were two serious strikes that tied up the work considerably. Besides these interruptions, work on the tunnel was also entirely stopped from August 1, when mobilization of the Swiss army was ordered, until September 22. The workmen, as is always the case with Swiss tunnels, are almost entirely Italians. The time allowed for building the new line is three years and six months, and, despite interruptions, it is believed the work will be finished almost on time.

* * *

The recently issued Administration Report on Railways in India covers the Indian financial year from April 1, 1913, to March 31, 1914. In that time the Indian state railways had better gross and net earnings than in the previous fiscal year, but owing to increased interest charges the percentage of net earnings to capital outlay fell from 6.48 to 6.19 per cent. Operation of the state and guaranteed railways resulted in a surplus to the state of $27,729,765 over and above interest charges and annuity payments connected with the purchase of railways by the state, whereas the surplus last year was $27,891,530. On March 31, 1914, the mileage of all the state and privately owned railways in India was 34,656 miles, 1,053 miles having been added during the year. The gross earnings of all the railways from April 1

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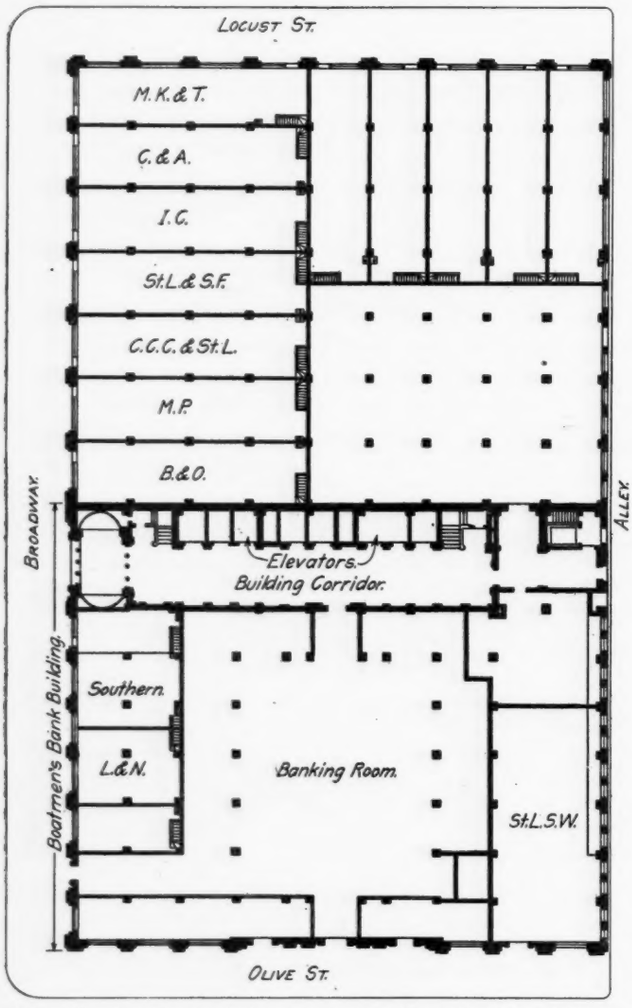
Bridge at Dannemarie, Near Belfort Destroyed by French Engineers for Reasons of Safety

to March 31 were $206,017,344, as compared with $199,936,186, an increase of $6,081,158, which was partly offset by increases in operating expenses of $5,663,518. The net earnings were thus $99,322,848, as against $98,905,209 in 1912-13. There was some increase in the passenger traffic, the number of passengers carried being 457,717,900. The passenger revenue was $68,850,322, of which by far the larger proportion, $59,519,374, was from third-class traffic. The average rate for all classes of passengers, slightly over 4 mills per mile, and the average distance traveled, 36.3 miles, have not materially changed since 1884. In freight

traffic, although there was a considerable increase in the tonnage carried, there was not a corresponding growth in earnings. This was due to a decrease in the average distance each ton of freight was carried from 199.2 miles in 1912 to 189.1 miles in 1913-14, a change caused by a falling off in the long-distance traffic to the ports, resulting from the failure of crops in the united provinces and some parts of Bengal and increased exports of grain to Europe. The aggregate tonnage of freight moved in 1913-14 was 82,613,000, the earnings therefrom being $122,390,578. The average rate per ton per mile, slightly over 7 mills, was about the same as in 1912. The volume of coal and coke carried was 17,295,000 tons, earning $16,078,498, of which the East Indian secured 9,380,000 tons and $9,030,634, and the Bengal-Nagpur 3,049,000 tons and $2,696,002.

CENTRALIZED TICKET OFFICES FOR ST. LOUIS RAILROADS

The railroads entering St. Louis, with two exceptions, have adopted a plan formulated by a special committee of passenger traffic officers for centralizing their city ticket offices. The plan provides for separate offices for the various roads, seven to be located in a new five-story building to be erected



Plan Showing Proposed Arrangement of Centralized City Ticket Office at St. Louis

on Broadway between Locust street and the Boatman's Bank building; three offices to be located in the latter building, and three in another building opposite, on Broadway. The roads which have not joined in the plan are the Vandalia and the Mobile & Ohio. Plans for consolidating the down-town ticket offices in St. Louis have been under consideration for several years.

It is believed that the plan will not only be far more economical than having separate offices in various locations, but that it will result in great convenience to the public. It is estimated that the plan will save the roads about $100,000 a year in rentals. After a decision on the location of the building had been reached the apportionment of the offices was made by lot. The Missouri, Kansas & Texas drew the corner of Broadway and Locust street, which is believed to be the choicest location. The leases of the individual offices will run for ten years. Work on the new building is to begin immediately, and it is expected to be ready for occupancy by June 1. Arrangements have been made to provide suitable space on Locust street for such roads as do not have lines into St. Louis as may desire to locate in proximity to the selling offices of the initial lines.

Each of the roads will pay $3,000 a year rental, except that for the corner location, $4,000 will be paid. Two roads now pay $15,000 a year each for the rental of their city ticket offices, and others pay from $10,000 to $14,000 a year.

The arrangement of the offices is shown in the accompanying plan. The Wabash, Rock Island and Burlington offices, which are not shown, are located on the opposite side of Broadway.

The special committee which formulated the plans was composed of J. D. McNamara, general passenger agent of the Wabash, chairman; C. L. Stone, passenger traffic manager of the Missouri Pacific; W. S. St. George, general passenger and ticket agent of the Missouri, Kansas & Texas, and W. A. Lalor, general passenger agent of the Chicago, Burlington & Quincy.

In 1911 a committee of passenger officers after a thorough investigation reported unanimously in favor of the establishment of a joint city ticket office, but the plan was not carried out. At that time the aggregate rentals paid for up-town ticket offices were $12,458 a month, and the salaries of those employed in them $6,715 a month, a total of $230,076 a year. The committee estimated that the rental of an adequate joint ticket office would be $50,000, and the cost of operating it $51,000, a total of $101,000, or a saving of about $130,000 a year. Under the plan outlined at that time, the location of the joint office was to be as central and convenient for the public as could be secured. Complaints and inquiries were to be handled by an information bureau which was to be very carefully organized. Room was to be provided in the office for the St. Louis Transfer Company, both telegraph companies, a taxicab stand, a separate Pullman office, and both telephone companies. The superintendent and assistant superintendent of the office were to be appointed by the Terminal Railroad Association, and would, therefore, be absolutely neutral. Ticket sellers were to sell tickets over any and all roads and were to observe the strictest neutrality. The street men or other representatives of the individual roads were not to be allowed to solicit or influence business inside the office, and authority was to be given to the superintendent to enforce this regulation. Two plans for the division of rentals and expenses were suggested. One was for each road to pay a minimum contribution of $1,500 a year to rent and a minimum contribution of $1,500 a year to expense account, the rest of the rent and expense to be prorated among the roads on the basis of actual ticket sales made in the office. The second plan was for each road to pay a minmum of $3,000 and a maximum of $9,000 a year for rent and expenses. The objections of one road prevented this plan from being carried out.

AUSTRALIAN STRATEGIC RAILWAYS.—It is reported that the Australian Railway War Council at Melbourne, which includes the commissioners of all the state railways and the chief of the general staff, is now discussing the uniform gage question and the construction of the new railways which are strategically necessary. The results will be placed before a conference of the federal and state ministers at an early date.

Arbitration on Western Engineers' and Firemen's Demands

Hearings Begun at Chicago. Claims of Employees Set Forth by Mr. Stone of the Enginemen's Brotherhood.

Hearings before the federal board of arbitration selected to consider the demands of the engineers and firemen on 98 western railroads for increases in pay and changes in working conditions were begun at Chicago on Monday, November 30. The board organized by selecting Jeter C. Pritchard, presiding judge of the United States Circuit Court of Appeals of the fourth circuit, as chairman, and H. S. Milstead, of Washington, D. C., as secretary.

The original requests of the engineers and firemen were presented on October 10, 1913, and it was estimated by the managers that if they were granted the wages of the men would be increased by approximately $27,000,000 a year, or 40 per cent. Upon receipt of the requests the individual western railways gave notice of their desire to terminate the wage schedules in effect, and to enter into negotiations for the purpose of making new agreements. The employees' committee then came back with another proposition which asked practically all of the concessions requested originally, and included additional requests. In the agreement to submit the controversy to arbitration the employees' committee withdrew the second demands and the managers withdrew their proposition. The arbitration therefore is confined to the demands made on October 10, 1913, which are comprised in 16 articles.

Article 1 provides that 100 miles or less, 5 hours or less, shall constitute a day's work in passenger service; all mileage in excess of 100 miles shall be paid for pro rata; 100 miles or less, 10 hours or less, to constitute a day's work in all classes of service, except passenger and switching service; mileage in excess of 100 miles to be paid for pro rata, and overtime in passenger service to be computed on a basis of 20 miles per hour, and in all other service except passenger and switching service, to be computed on a basis of 10 miles per hour and paid for at the rate of 15 miles per hour; all overtime to be computed on the minute basis. Article 2 provides for increases in pay for various classes of service. Article 3 provides for a 10 per cent increase over through freight rates for local or way freight service. Article 4 provides for increased rates of pay in switching service, with overtime after 10 hours, at the rate of time and a half; all overtime to be computed on the minute basis. Article 5 provides for payment for 30 minutes of preparatory time in addition to other time or mileage made on the trip or day. Article 6 provides for additional allowances for initial terminal delay and final terminal delay, to be paid for on a minute basis. Article 7 provides that engineers and firemen arriving at a terminal at the end of a run shall be automatically released; when used again they begin a new day. It also provides for continuous time.

Article 8 provides for payment for time during which engineers and firemen are held at other than home terminals. Article 9 provides for payment for time spent in dead-heading on company business. Article 10 provides for hostlers at points where six or more locomotives are handled within 12 hours, their rates of pay and other conditions. Article 11 provides that the practice of conducting surprise tests in certain ways shall be eliminated. Article 12 provides that coal shall be kept where it can be reached by the fireman from the deck of the locomotive, and that coal of the proper size shall be placed on all tenders. Article 13 provides for two firemen on coal-burning locomotives weighing 185,000 lb. and more on drivers. Article 14 provides for relieving engineers and firemen of incidental services, such as cleaning locomotives, where they are now required to do so. Article 15 provides that railroads shall permanently post bulletins at all terminals showing accurate service weights of all locomotives for the purpose of recording weights on drivers. Article 16 provides that engineers and firemen will not be required to throw switches, flag through blocks or fill water cars.

Warren S. Stone, grand chief of the Brotherhood of Locomotive Engineers, made an opening statement in which, after outlining the history of the negotiations with the Association of Western Railroads, in 36 conferences, he stated the cases of the engineers and firemen are to be considered as a single proposition, and that all the evidence to be presented regarding the service of engineers applies also to the firemen; that they work together and should share alike in any benefits that may accrue from the award. He said that the board should recognize the changed conditions in the transportation service that demand more than ever before of the individual employes, and that new rates and working conditions must be established to compensate them for service performed.

"If there is any job in the world," he said, "which calls for more complete concentration of mind and quicker action of brain or sounder judgment than that of the engineer and the fireman in the cab of a locomotive, I have never heard of it." He then insisted that the wages of engineers and firemen should be sufficient to provide for "depreciation," saying that "if physical or technical examinations, age limits or service requirements beyond the limit of human endurance deprive men in middle life of the opportunity of earning a living at their profession, then they should receive not only a living wage, but also enough to enable them to live in comfort for the remainder of their years after their disqualification."

"With all due respect to other employees or officials on these great systems," he said, "it is the men in the cab who are the really responsible men, who by their skill and ability make it possible for a railroad to earn revenue and pay dividends. They are the men who carry the heaviest end of the load of responsibility. That responsibility becomes heavier every year. Each year traffic becomes heavier and more congested, the net work of signals increases, the public demands faster time and better service, larger and more powerful locomotives are built, the tonnage of trains increases; more and more is required of the men in the cab; the examinations become more strict and discipline more rigid. All these increased burdens fall on the same men, the number not having been increased for the purpose of dividing this work and responsibility, as there is only one engineer and one fireman in the cab. There has never been a time in the history of the railroad world when so much was being taken out of the men in the cab as now by requirements beyond the limit of human endurance."

He then outlined the experience required of a man before he is promoted to engineer, and the strict examinations that are required. He said that the occupation of enginemen is classed as extra-hazardous, and insurance companies, if they will insure them at all, charge an extra premium. He also asserted that every minute a man is on duty, regardless of the weather or other conditions; the same strict requirements are demanded of him.

Mr. Stone said it was proposed to show that during the past 24 years the western railways have made remarkable gains in productive efficiency by the installation of locomotives of greater tractive power, elimination of curves and reduction of grades, and remarkable increases in trainloads, and that the burden is borne by the enginemen. Their labor and responsibility, and their productive efficiency have been increased, but their earning capacity has declined. The railroads are not satisfied with the present conditions which have reached the limit of human endurance, but are intending to add further to the trainload. The revenue gains arising from the advances already made in

the efficiency of the railroads have been sufficient to pay all increases in operating costs and a reasonable return on the capital investment, in addition to leaving an ample surplus to remunerate the engineers and firemen for their increased work and productive efficiency.

James M. Sheean, attorney for the railroads, also made a very brief opening statement, declaring it is the belief of the railroads that their present rates of pay are full, fair and adequate, but said he would reserve his discussion of the points involved in the case until the issues had been presented in detail.

The first witness for the employees was M. W. Cadle, assistant grand chief of the Brotherhood of Locomotive Engineers, who took up the 16 articles which comprise the demands of the men, one at a time, to show that all of the proposed rules which they are asking to have adopted by all of the western roads are now in effect on some of the roads. Discussing Article 1, on the basis of a day's work, he said that 47 eastern roads, 14 western roads, and 24 southeastern roads now have the 5-hour day in passenger service. Six western roads, he said, have an 8-hour day in freight service. The other roads have a 10-hour day.

Taking up Article 2, on rates of pay, Article 3 on local or way freight service, and Article 4, on switching service, he mentioned various roads that have in effect some of the proposed rules or rates. With reference to Article 5 on preparatory time, he said that many duties are required of the engineers and firemen before the actual run begins, depending on the class of the engine and how much work is done in the shop beforehand, and that the rules on many roads require the men to have their engines ready at least 30 minutes before leaving time, and that this time should be paid for. With reference to Article 6, providing for pay for terminal delay, he said that this was in the nature of penalty time; that trains are often held at terminals at the end of a run before the enginemen can be released, that there is often a delay in leaving terminals after the time at which they are supposed to go out, that if the men are required to put in this time they should be paid for it, and that a penalty where it has been applied has the effect of reducing these delays. He said that eight western roads pay for final terminal dalays of 15 minutes or more in freight service; that 27 pay for 30 minutes or more, and some allow for one hour or more.

Referring to Article 7, providing that engineers and firemen arriving at the terminal or the end of the run shall be automatically released, and then when used again they begin a new day, W. L. Park, a member of the board of arbitration, remarked that under this rule a man could receive three or four days' pay for a few hours of work. To this Mr. Stone replied that the rule is intended to prevent an abuse now practiced by many railroads; that frequently a crew which may have worked 15 hours arrives at the end of its run and then is required to work another hour in performing some small service, to save calling another crew. With reference to Article 8, providing for payment for time when men are held away from home terminals, Mr. Cadle said that there are a number of rules now in effect that men shall not be released between terminals, except when tied up under the federal hours of service law; that the Canadian Northern pays for time during which men are held away from home terminals after 18 hours; one road pays after 12 hours, and the Chicago Great Western agrees not to hold men more than 24 hours. Six roads pay for 100 miles for each 24 hours during which the men are held away from their home terminals.

Walter Moore, schedule expert of the firemen's brotherhood, gave testimony similar to that of Mr. Cadle.

RAILWAY CONSTRUCTION ON THE GOLD COAST OF AFRICA.—It is estimated that the extension of the Gold Coast Railway from Komfrodna to Kumasi will cost about $6,000,000. The first section, to Komfrodna, will probably be opened early next year.

A CONVERTED LIVESTOCK SHIPPER

The Breeder's Gazette recently published an article on "Railway Livestock Rates," by A. E. de Ricqles, president of the American Cattle Company and general manager of the American Livestock & Loan Company, of Denver, Col., from which the following extracts are taken:

"I would like to offer the idea that perhaps the stock growers can now afford, under the new condition of things, to assist the railroads in their request for a general 5 per cent, rate increase, so that they may continue in business and keep up with the demands from the country, because there is no element more important to the stockgrowers than the railroads. Transportation is perhaps more necessary in the livestock business than to any other of the food-producing industries, because the breeding sections are seldom the finishing or fattening countries, and either the livestock must be shipped to the feeding country or the feed shipped to the livestock.

"Livestock rates and service have been a great question befor the stockgrowers for many years. On innumerable occasions, on behalf of the livestock interests, have I appeared before congressional committees, before the Interstate Commerce Commission, state railway commissions and others, in matters of rate hearings and propositions of service and railway laws and regulations generally. A great amount of my time has been devoted to matters of this kind, and my position and activity are well known; but we have now arrived at a place where a majority of the carriers are giving good service, and showing our business the consideration it should have, and it becomes us to go to their assistance in their extremity.

"There is no doubt but that there is a crisis in this country today in connection with railroad expenses and operations. It is hardly necessary to call attention to the fact that in spite of the immense decrease in gross earnings there is a tremendous increase in expenses. Any cattle man who has this condition existing on his ranch knows that he is headed for destruction. Anything that might happen to the railroads that would result in reducing their efficiency, or retarding their advent into a new country, or prevent them from furnishing high grade service at all times, would be a catastrophe to all of us. Therefore it is of the utmost importance that the railroads be allowed to earn a fair revenue that they may be able to maintain their efficiency and keep up the high standard that stockgrowers have been demanding and are entitled to.

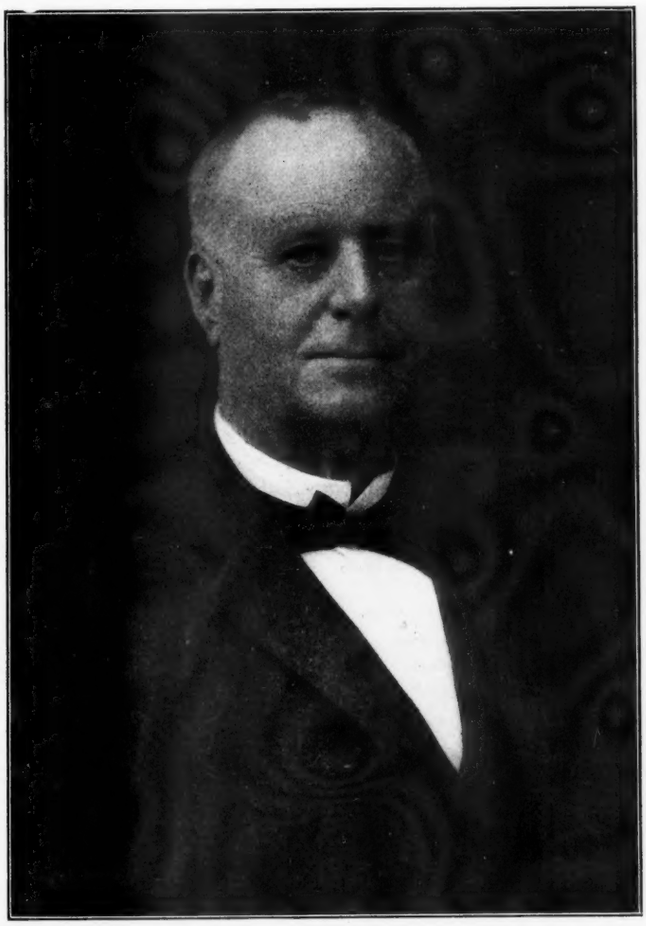
"There are several reasons why I have changed my views on this matter of railroad charges, and one reason is I believe the prosperity of the railroads is more important to our industry than almost any other feature of our present-day activities. Labor employed by railways is a big feature in this country, and when railway men are well employed they are good buyers of our products. Then again railways are large purchasers of materials that in preparation give many laboring men active employment, these laboring men being also good buyers of meats and meat products. Furthermore, there is an immense country developing in the west that needs railway transportation. Without new railways vast sections of this country will not be settled very soon, for all the products of the semi-arid country cannot be consumed by its local population, and a part must find an outlet and market in more densely settled districts. It is this surplus that is shipped that makes the price of what is kept at home. Then again there are large sections of the western country in Wyoming, Montana, Texas, and elsewhere, awaiting the advent of new railway branches, and we cannot expect capital to be put into railway lines when it does not produce a fair return."

RAILWAY DESTROYED BY THE TURKS.—According to advices from Athens, a section of the Smyrna-Kassambra Railway has been destroyed by the Turkish military authorities, rendering the operation of the railway from Smyrna impossible.

LUCIUS TUTTLE

Lucius Tuttle, for 17 years president of the Boston & Maine, and for three years, 1910-1913, chairman of the board of directors of that company, died at his home in Brookline (Mass.), November 30, at the age of 68. The cause of death was angina pectoris. Mr. Tuttle had been in poor health since the amputation of a leg about three years ago, but had continued active until within about a week of his death.

Mr. Tuttle was at the head of the Boston & Maine during the years when most of the important acquisitions of other roads were planned and carried out, and both the successes and the errors of those years were the subject of severe criticisms. Many of the criticisms voiced in the newspapers were based on the narrowest views, and acts which were for the best interest of the public were condemned, along with others really blameworthy; but the later troubles of the Boston & Maine were of a kind which could be cured only by those policies, bold financially and frank in their attitude toward the public, which in the "old school" where Mr. Tuttle learned his lessons, were never taught and seldom practiced. He was forceful and enterprising in many directions—as, for example, in adopting automatic block signals long in advance of his neighbors—but the public demanded a still more perfect railroad, and it became evident that the problem could not be solved except by a revolution—which came in 1910. In this revolution Mr. Mellen had a leading part. It must be remembered that the road serves a large summer-resort territory—which means bread-and-water rations for seven or eight months in the year—and there is also a large mileage of lines where this unpromising condition exists the year round; so that there were problems in plenty, aside from those connected with legislative and newspaper criticism. Some of the road's misfortunes, therefore, appear to have been almost inevitable.



Lucius Tuttle

Mr. Tuttle was born in Hartford, Conn., March 11, 1846. He was the son of a farmer, and his paternal ancestor, William Tuttle, who came from England in 1636, was one of the founders of New Haven. Young Tuttle's first work was as a clerk in the Hartford District court; but in August, 1865, he began his railroad service, as a ticket seller in the station of the Hartford, Providence & Fishkill, which subsequently became a part of the New York & New England, and is now included in the New Haven system. After only one year in the local office he was made general ticket agent of the road; and he held that office until 1878. Then, on the absorption of his road by the New York & New England, he was made assistant general passenger agent of that road, and went from Hartford to Boston.

But being dragged about from one city to another by consolidations of roads and changes of titles, a process so familiar in the railroad world in later years, seems not to have been to Tuttle's taste; and in less than six months he left the New York & New England and took the place of general passenger agent of the Eastern Railroad, now one of the principal divisions of the Boston & Maine. But in 1885, when the Eastern was absorbed by the Boston & Maine, and Tuttle was made assistant general manager under James T. Furber, he soon resigned and went to the Boston & Lowell as general passenger and ticket agent.

After two years on the Boston & Lowell his ability as a passenger traffic man seems to have become so well known that he was wanted on a number of larger roads, and in January, 1887, he went to the Canadian Pacific as passenger traffic manager, with headquarters at Montreal.

Two years later he returned to the United States, and from May, 1889, to May, 1891, he was commissioner of the Trunk Line association at New York City, acting as chairman of the passenger department. In the latter year he was called to the New York, New Haven & Hartford as general manager; and in 1892 was made vice-president of that road. But after only one year in this position he went to the Boston & Maine, as president, which position he held until October, 1910, when Mr. Mellen was made president and Mr. Tuttle chairman of the board of directors.

From the first it seems to have been Mr. Tuttle's policy on the Boston & Maine to take in all of the railroads which could be classed as either subsidiary or directly competitive. The Connecticut River road, from Springfield northward, had been acquired at an extravagant price to keep it away from the New Haven road before Mr. Tuttle became president; but this was followed in quick succession by the Boston & Lowell, the Boston, Concord & Montreal and numerous smaller roads. In 1899 control was secured of the Maine Central, though its organization was left separate. This, as everyone knows, had been one of the Boston & Maine's best investments.

In 1900 came the acquisition of the Fitchburg road, taking the Boston & Maine into New York state, and considerably beyond Albany. This road, including the Hoosac tunnel, which had been built by the state of Massachusetts at enormous cost, was controlled by the state; and the campaign in the legislature to secure the consent of the state to the leasing of the road by the Boston & Maine was a notable episode in Massachusetts politics. The Fitchburg has been a prominent element in the Boston & Maine system, and has carried great quantities of western grain and produce to Boston. The extensive docks established there by the Boston & Maine to accommodate this traffic constituted one of the most popular enterprises of the Boston & Maine, many millions being invested. But the interest charges on the Fitchburg securities have undoubtedly been one of the road's heavy burdens.

Personally Mr. Tuttle was affable and always approachable, liked by all. He did much to promote the work of the Boston & Maine Young Men's Christian Association, and was a man of wide information. Besides being courteous he was con-

siderate, and the employees always relied on his sense of justice. "He gave everybody a fair chance," has been said of him by one man who holds an important position. In May, 1913, he was given the degree LL. D. by the New Hampshire State College. He was a director of several banks and railroad companies, and a member of various clubs, including the Algonquin, Commercial and Merchants' clubs of Boston, the Boston Chamber of Commerce and the New England Civic Federation.

THE PARCEL POST AND ITS EFFECTS ON RAILWAY REVENUES*

A study of the revenues of express companies for the last two years is not without profit, because impressions can be gained as to the drift of events, even though no certain conclusions can be reached. The express revenues of the fiscal year ended June 30, 1913, were affected by only six months' competition with the parcel post, but those of the next year suffered from this cause for a full year. And in five months of this last twelvemonth reduced express rates were in effect.

The gross revenues from operation of all express companies for the fiscal year ended June 30, 1913, as compared with the previous year, were as follows:

	1913	1912	Increase	Per cent
Mileage	301,064	283,303	17,761	6.27
Revenue	$168,880,923	$160,121,932	$8,758,991	5.47

This increase of $8,758,991 was in spite of the competition of the parcel post for the last six months of the year. It might be held that the additional revenue could be credited entirely to the new mileage, which increased in greater percentage than the revenue; but the mileage does not always have a harmonious relation to the revenue.

While there must have been some loss of business because of the parcel post, the amount evidently was not large enough to be positively disclosed in the gross revenues. We may also conclude, at least tentatively, that a large amount of the parcel post traffic from January 1 to June 30, 1913, was new business.

The only statistics yet available for the year ended June 30, 1914, are those of the Adams, the American and the Wells-Fargo companies. These, combined, represent nearly 70 per cent of the revenues, and 65 per cent of the mileage of all of the express companies. For comparison the figures are given since 1912.

ADAMS, AMERICAN AND WELLS-FARGO COMPANIES

Year	Revenue	Increase	Per cent
1912	$110,372,802	$10,666,994	10.69
1913	117,965,952	7,593,150	6.87
1914	110,579,322	*dec.* 7,386,630	*dec.* 6.26

If the revenues of these three companies for 1914 had shown the same growth as between 1912 and 1913, they would have been $125,000,000.

Part of the deficit is due to reduced rates. One prediction was that these would result in a reduction of 22 per cent. As the reduced rates were in effect only five months of the year, this would be equivalent to 9 per cent, or about $11,000,000, which, subtracted from $125,000,000, leaves $114,000,000. Comparing this with the actual earnings of about $110,000,000, leaves $4,000,000 to represent the maximum amount that could be due to parcel post competition. Another prediction was that the new rates would reduce revenues 17 per cent. On that basis the loss in 1914 was $8,750,000, leaving the maximum loss attributable to parcel post competition about $6,000,000.

[Mr. Bradley quotes the estimates made by the Interstate Commerce Commission in 1909 that the average weight of express packages was 32.80 lb.; that the average revenue per package was 50.49 cents, and the average per pound 1.54 cents; and then, comparing with other estimates concludes that in the year to June 30, 1914, the express companies lost 24,000,000 pieces. He then goes on.]

The active competition of the parcel post is from 1 to 11 lb., and from the first to the third zone. The 4-lb. package would be the typical average, for which the express rate to the third zone would be about 25 cents. The loss to the express companies was seemingly about 5 or 6 per cent in pieces and about 3 or 4 per cent in revenue. If express companies lost $6,000,000 in revenue, the railroads lost approximately $3,000,000.

In Great Britain, the parcel post is a distinct class of postal matter and pays the railroad companies 55 per cent of its revenues. In this country, Congress did not establish the parcel post as a class by itself, but merely extended the fourth-class of mail matter from a weight limit of four pounds to a weight limit of 11 lb., and rearranged the rates. This fourth-class in 1912, before the parcel post was established, already embraced about 240,000,000 pieces a year, weighing about 76,000,000 lb., with an average weight per piece of 5 oz., or 3.16 pieces per pound. The revenue from this class was about $12,500,000.

When statements are made regarding the volume of parcel post business, it is necessary to inquire whether the amount quoted includes or excludes the old fourth-class mail.

The postmaster general predicted at a Congressional Committee hearing December 3, 1913, that during the fiscal year 1914-1915 there would be transported 600,000,000 parcels that would yield a revenue of 10 cents a piece, or a total of $60,000,000. This estimate undoubtedly included the old, as well as the new, fourth-class matter and might be restated as approximately 300,000,000 parcels.

A representative in Congress, who has made some study of the subject, estimated the bona fide parcels at 150,000,000 in 1913, and 250,000,000 in 1914, thus showing a growth in one year of 66 per cent. If we calculate the weight of these parcels at 4 lb. each, we obtain a total weight in 1913 of 600,000,000 lb., and in 1914 of 1,000,000,000 lb. About 95 per cent of this weight is carried on the railroads. Therefore, we may say that the railroads carried in 1913 about 280,000 tons, and in 1914 about 475,000 tons of additional mail matter for an average distance of about 300 miles. The ton mileage of this mail in 1913 would, therefore, have been about 84,000,000. The Post Office Department reported to Congress as of April, 1913, a ton mileage for all mail of 510,000,000. The addition was, therefore, about 15 per cent in that year and even greater in 1914.

The only action by Congress towards compensation was an allowance of 5 per cent increased pay to the railroads until the mails were weighed in regular course, but this weighing is only made once in four years. The 5 per cent allowance amounted to $1,687,360, although the additional revenue received by the Post Office Department from the first year's new business was estimated at about $15,000,000. The railroads in the First Contract Section (the New England states, New York, Pennsylvania, New Jersey, Delaware, Maryland, Virginia and West Virginia) did not receive the 5 per cent allowance, because the mails were weighed on these roads from February to June, 1913, and they were supposed to receive the benefit of some of the increased business. Even if this were true, it cannot be considered an adequate provision for the increase of the following four years, especially as it appears that there is a growth of 66 per cent in the second year.

In conclusion it may be said:

1. That so far as the railroad revenues are reduced at the present time because of the reduction in the revenues of the express companies, this is more due to the new rates prescribed by the Interstate Commerce Commission than to the competition of the parcel post.

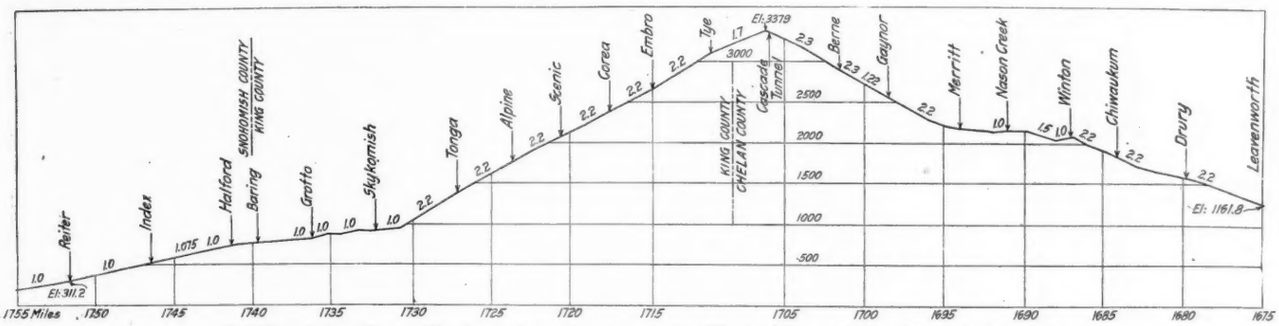
2. The parcel post, by the creation of a large amount of new business as well as by taking some business from the express companies, has greatly increased the tonnage of the mail transported without any adequate provision for payment to the railroads. It is of great importance that such remedial action be taken promptly, not only because justice to the railroads requires it, but also that the government may obtain information as to the full cost of performing the parcel post business. The knowledge of the full cost of transporting the parcel post business will save Congress from approving of parcel post rates which would result in a heavy increase in taxation.

*From a paper read before the New York Railroad Club on November 20 by V. J. Bradley, general supervisor of mail traffic, Pennsylvania Railroad.

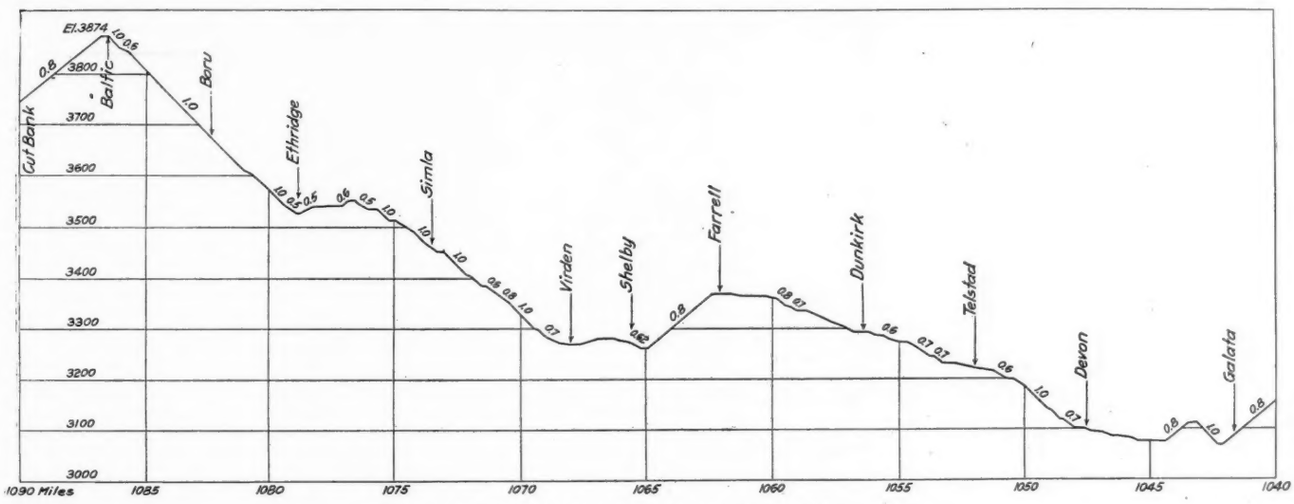
Passenger Locomotives for the Great Northern

Pacific and Mountain Types Used in Hauling Twelve-Car Transcontinental Trains Over the Heaviest Grades

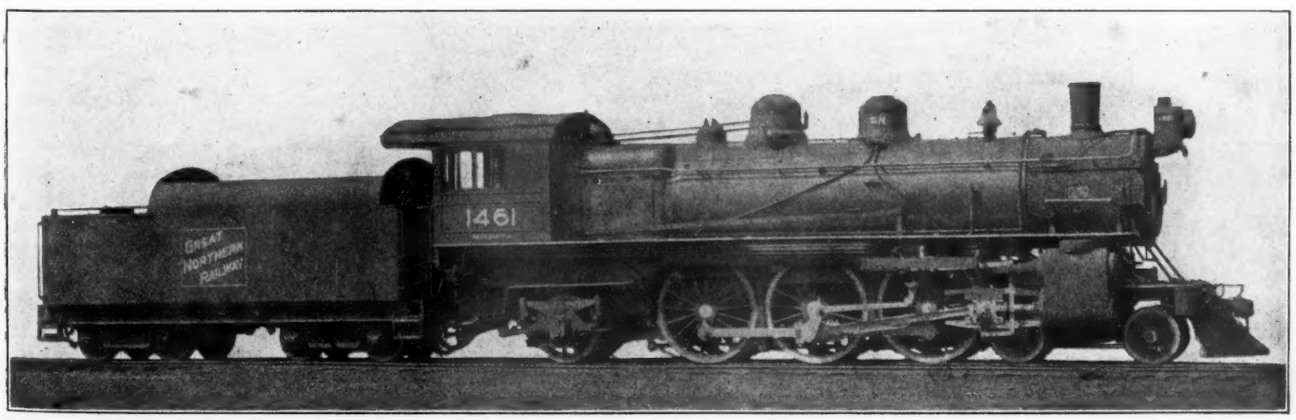
The Great Northern has obtained very satisfactory service from 25 Pacific and 15 Northern or Mountain type locomotives delivered to that road about a year ago by the Lima Locomotive Corporation, Lima, Ohio. The Pacific type locomotives are used on the transcontinental trains between St. Paul, Minn., and Cut Bank, Mont., a distance of about 1,072 miles. The first locomotive district is one of 408 miles, from St. Paul to Devil's Lake, N. D., the crews being changed about 217 miles out of St. Paul. The next district is between Devil's Lake to Williston, N. D., a distance of 239 miles, the crews being changed 118 miles from Devil's Lake; the third is from Williston to Havre, Mont., a distance of 309 miles, the crews being changed at Glasgow, about half way. The fourth and last district on which the Pacific type locomotives are used is from Havre to Cut Bank, Mont., a distance of 129 miles. This portion of the road is in the foot hills of the Rocky mountains and considerable stretches of one per cent grade are encountered throughout, part of the profile



Profile of the Great Northern from Leavenworth, Wash., Through the Cascade Tunnel



Profile of Part of the Great Northern West of Havre, Mont.



Pacific Type Locomotive for the Great Northern

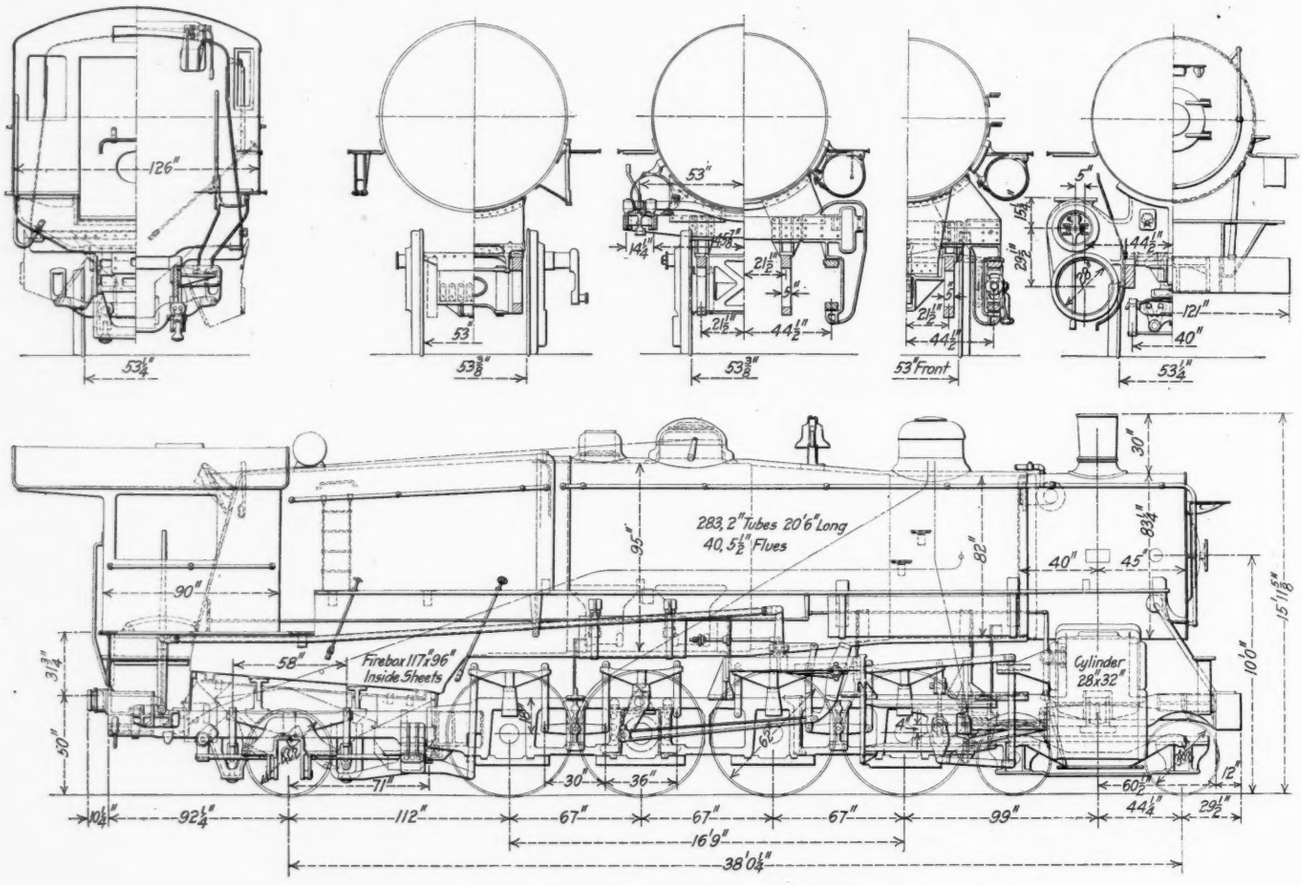
being shown in one of the illustrations. The accompanying table gives more detailed information concerning these runs:

TIME TABLE FOR THE PACIFIC TYPE LOCOMOTIVES

Stations	Distances, miles	Schedule Stops	No. of cars	Max. grade, per cent	Time	Average speed, m. p. h.
St. Paul to Devil's Lake..	408	8	11 to 12	.72	11 hrs. 25 min.	35.7
Devil's Lake to Williston..	239	5	11 to 12	.72	6 hrs. 35 min.	34.3
Williston to Havre.....	309	5	11 to 12	...	8 hrs. 50 min.	34.8
Havre to Cut Bank.....	129	None	11 to 12	1.	4 hrs. 10 min.	30.

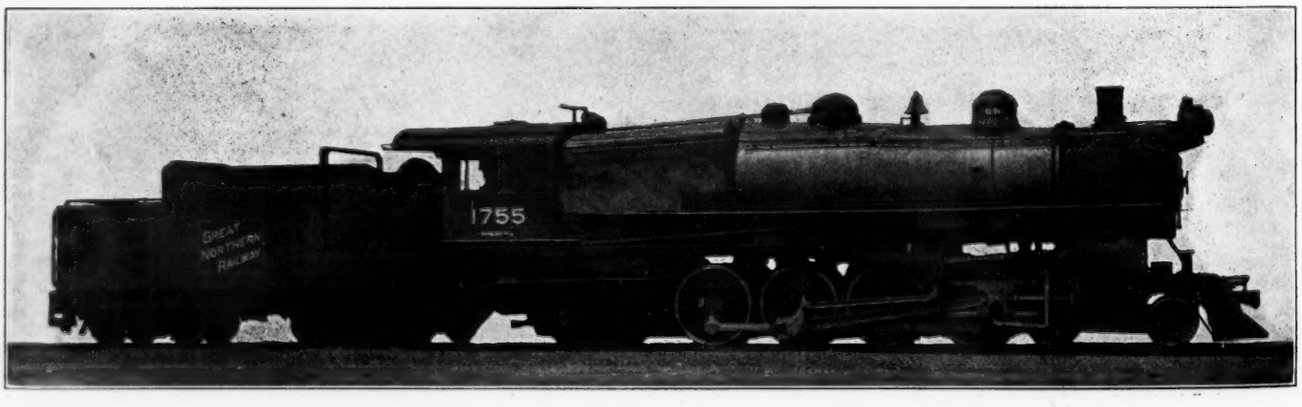
service has been entirely eliminated without a change being made in the time table, the Mountain type engines handling the trains at a speed of 17 to 20 m. p. h. on the 1.8 per cent grade.

The Mountain type engines have also been placed in service over the Cascade mountains, where the grade is 2.2 per cent, as shown in the accompanying profile. It will be noted that this grade is somewhat broken for a distance of 32 miles



General Arrangement of the Mountain Type Locomotive for the Great Northern

The Mountain type locomotives haul these same trains from Cut Bank to Whitefish, Mont., a distance of 129 miles. This division runs through the Rocky mountains in the vicinity of Glacier Park, and one per cent westbound and 1.8 per cent eastbound grades are encountered. Prior to putting on this type of engine in this service it was necessary to provide a helper on the eastbound run of this division for a distance of 18 miles between Essex and Summit. This helper going west, whereas it is almost continuous running eastbound for a distance of 25 miles. In this case, as before, the use of these engines has eliminated the helper service, and they maintain a speed of 15 m. p. h. up this grade with the transcontinental trains. These engines on this hill are burning oil for fuel. Both the Pacific and Mountain type engines are said to be very good steamers and are giving an economical fuel and water performance.



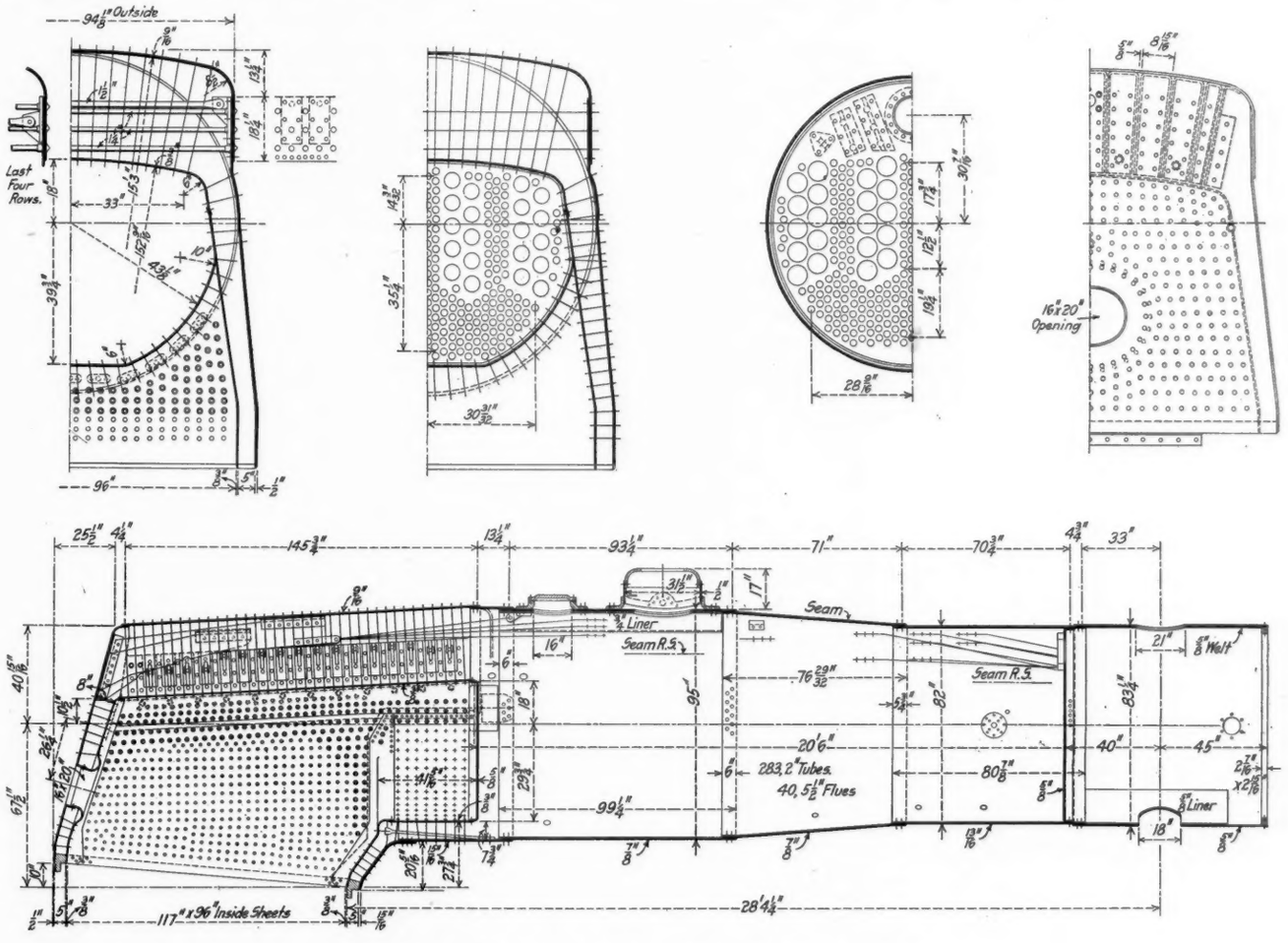
Mountain Type Locomotive for Passenger Service on the Great Northern

The Mountain type locomotives weigh 326,000 lb. in working order and have a tractive effort of 61,900 lb. They carry a boiler pressure of 180 lb., and have 28 in. by 30 in. cylinders and 62 in. driving wheels. They are equipped with Emerson superheaters, which provide a superheating surface of 1,075 sq. ft. The rigid wheel base of these engines is 16 ft. 9 in. The distance between the tires of the forward pair of drivers is 53 in., while the distance between the other drivers is 53⅜ in. The two leading pairs of drivers are equalized with the leading truck, while the two back pairs are equalized with the trailing truck. The forward spring hangers of the first set of driving springs support a transverse equalizer, from the middle of which is swung a longitudinal equalizer with its fulcrum on a casting attached to the guide yoke frame brace and to a waste sheet as shown in the elevation drawings. The other end of this equalizer is hung from a second longitudinal equalizer at a point just back of the cylinder casting. This second equalizer has its fulcrum on the leading truck center casting, and its forward end is attached to the front buffer casting. This construction gives the front part of the frame ample support and tends to reduce frame breakages back of the cylinder castings. The frame is made continuous from the splice in the rear of the fourth pair of drivers through to the buffer casting. It is 5 in. wide and is braced by three frame braces and three cross bearers. The main journals on these engines are 22 in. long.

The Pacific type engines weigh 251,200 lb. in working order, and have a tractive effort of 40,500 lb. They carry a boiler pressure of 210 lb. and have 23½ in. by 30 in. cylinders; the drivers are 73 in. in diameter. The distance between tires on the forward pair of drivers is 53 in., while that for the main drivers is 53⅜, and for the back drivers 53¼ in. All three pairs of drivers are equalized with the trailing truck, the cylinder casting resting directly on the center plate of the forward truck. The frames are 5 in. in width, the same as the Mountain type engines, and they are made in one piece from the front buffer to the splice in the rear of the back set of drivers. These locomotives are also equipped with the Emerson superheater, having a superheating surface of only 640 sq. ft.

Both types are equipped with the Walschaert valve gear, and the Chambers throttle valve. The leading trucks on both types of engines are the same and were designed by the railroad company. They have an 86 in. wheel base and support a load of 50,000 lb. in the case of the Mountain type locomotive and 55,000 lb. in the case of the Pacific type.

The trailing truck was designed by the Lima Locomotive Corporation and is known as the Austin truck. It is designed to simplify the removal and replacement of journal boxes and to provide a self-centering radial action of sufficient stiffness to prevent undesirable swinging of the rear end of the locomotive.



Boiler Used on the Great Northern Mountain Type Locomotive

The boilers of both the Mountain type and Pacific type are of the Belpaire type and are partially equipped with Tate flexible stay bolts. The boiler of the Mountain type locomotive has a combustion chamber about 41 in. deep, which provides a tube length of 20 ft. 6 in. The Pacific locomotive, however, is not equipped with a combustion chamber and has a tube length of 21 ft. The outside diameter of the first ring of the Mountain type boiler is 82 in., while that for the Pacific type is 72 in. The cylinders of both engines are of similar design, the steam passages being

contained in the cylinder saddle. The valves are provided with 5/8 in. bushings, those for the Mountain type being 16 in. inside diameter, and those for the Pacific type 12 in. inside diameter.

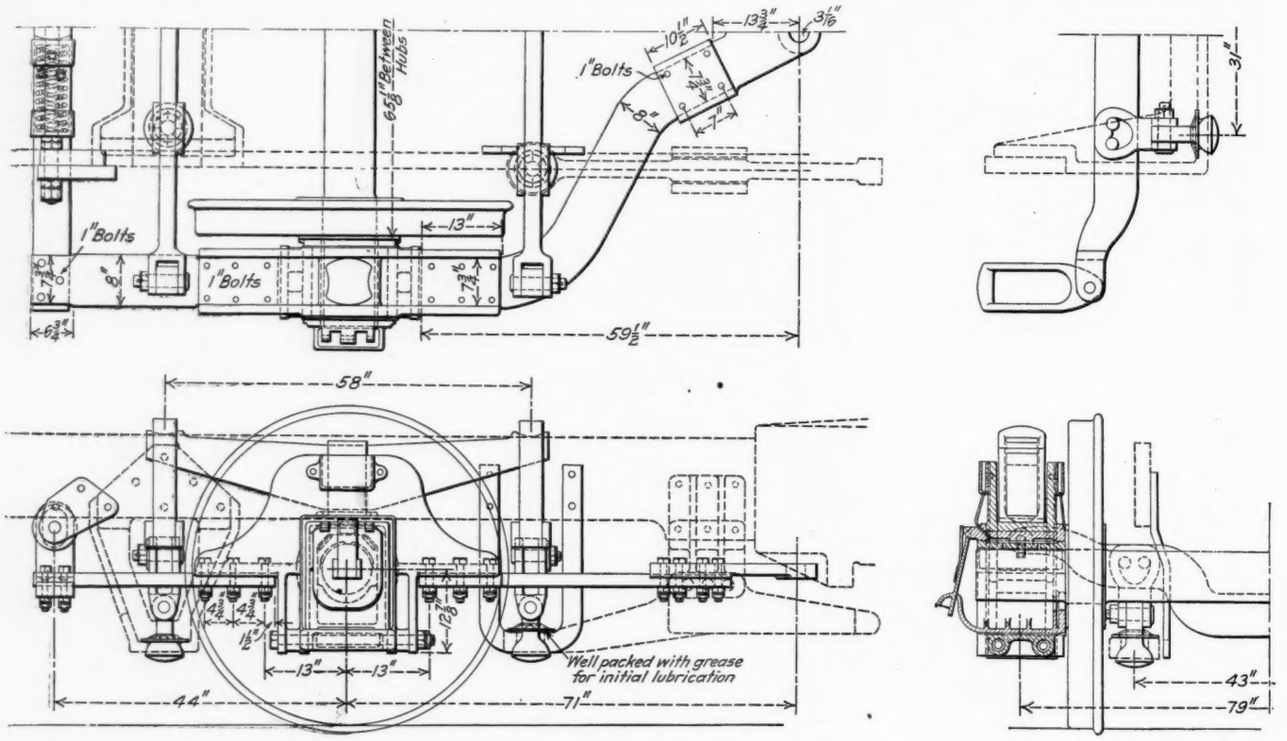
The following is a table of the principal dimensions and ratios:

General Data

Type	4-8-2	4-6-2
Gage	4 ft. 8½ in.	4 ft. 8½ in.
Service	Pass.	Pass.
Fuel	.....	.....

Boiler

Style	Conical Belpaire	Straight Belpaire
Working pressure	180 lb.	210 lb.
Outside diameter of first ring	82 in.	72 in.
Firebox, length and width	117 in. by 96 in.	116 in. by 66¼ in.
Firebox, water space	5 in.	5 in.
Tubes—number and outside diameter	283—2 in.	155—2¼ in.
Flues, number and outside diameter	40—5½ in.	32—5½ in.
Tubes, length	20 ft. 6 in.	21 ft.
Heating surface, tubes	4,200 sq. ft.	2,870 sq. ft.
Heating surface, firebox	340 sq. ft.	206 sq. ft.
Heating surface, total	4,540 sq. ft.	3,076 sq. ft.
Superheater heating surface	1,075 sq. ft.	640 sq. ft.
Total equivalent heating surface*	6,153 sq. ft.	4,036 sq. ft.
Grate area	78 sq. ft.	53.3 sq. ft.



Trailer Truck Used on the Great Northern Locomotives

Tractive effort	61,900 lb.	40,500 lb.
Weight in working order	326,000 lb.	251,200 lb.
Weight on drivers	218,000 lb.	150,700 lb.
Weight on leading truck	50,000 lb.	55,000 lb.
Weight on trailing truck	58,000 lb.	52,700 lb.
Weight of engine and tender in working order	487,000 lb.	420,000 lb.
Wheel base, driving	16 ft. 9 in.	13 ft.
Wheel base, total	38 ft.	33 ft. 9 in.
Wheel base, engine and tender	71 ft. 4 in.	66 ft. 9 in.
Ratios		
Weight on drivers ÷ tractive effort	3.52	3.51
Total weight ÷ tractive effort	5.27	6.17
Tractive effort × diam. drivers ÷ total equivalent heating surface*	623.	733.
Total equivalent heating surface* ÷ grate area	79.	75.7
Firebox heating surface ÷ total equivalent heating surface,* per cent	5.5	5.1
Weight on drivers ÷ total equivalent heating surface*	35.4	35.3
Total weight ÷ total equivalent heating surface*	53.	62.
Volume both cylinders	22.78	15.04
Total equivalent heating surface* ÷ vol. cylinders	270.	268.
Grate area ÷ vol. cylinders	3.43	3.54
Cylinders		
Kind	Simple	Simple
Diameter and stroke	28 in. by 32 in.	23½ in. by 30 in.
Valves		
Kind	Piston	Piston
Diameter	16 in.	12 in.
Outside lap	1⅛ in.	1 in.
Lead in full gear	¼ in.	¼ in.
Wheels		
Driving, diameter over tires	62 in.	73 in.
Driving, thickness of tires	3 in.	3½ in.
Driving journals, main, diameter and length	11 in. by 22 in.	10½ in. by 16 in.
Driving journals, others, diameter and length	10 in. by 12 in.	9½ in. by 12 in.
Engine truck wheels, diameter	36½ in.	36½ in.
Engine truck, journals	6 in. by 12 in.	6 in. by 12 in.
Trailing truck wheels, diameter	42½ in.	49 in.
Trailing truck, journals	8 in. by 14 in.	8 in. by 14 in.

Tender

Tank	Wat. bot.	Wat. bot.
Wheels, diameter	36½ in.	36½ in.
Journals, diameter and length	5½ in. by 10 in.	5½ in. by 10 in.
Water capacity	8,000 gal.	8,000 gal.
Coal capacity	15 tons	15 tons

*Total equivalent heating surface = total evaporative heating surface + 1.5 times the superheating surface.

OPERATING THE MILWAUKEE (WIS.) TERMINALS OF THE ST. PAUL

By W. B. Hinrichs

Superintendent of Terminals, C. M. & St. P., Milwaukee, Wis.

The problems presented in the operation of large terminal yards are varied, intricate and exasperating. It is far more trying and difficult to operate successfully industrial terminals than large classification yards, where the make-up and break-up of trains is the only consideration. Let me briefly review the methods in vogue on the C. M. & St. P., at Milwaukee, Wis., where both flat and hump switching are extensively carried on.

We have over 300 miles of terminal yard and industrial trackage in this city. This mileage includes 17 yards, varying in capacity from 300 to 2,700 cars. Six of these are used exclusively for the receiving, classification and departure of trains; and the other 11 for assembling, storing and classifying cars for industries located in such yards, or in their immediate vicinity. Nearly every one of these 11 industrial yards has team track facilities, accommodating from 13 to 350 cars, the total capacity of these team tracks being 760 cars.

The industrial yards have been located where a large num-

ber of factories and industries had established their plants. Firms have also located at these yards when possible to obtain better switching service. For example, in the North Avenue district, 80 firms are served from one yard. The handling of a large amount of merchandise, beer, meat and other perishable freight, and the forwarding of these cars on eight or ten different time freights before midnight of the day they are loaded, is a task. As an illustration beer loading during the hot weather has reached over 250 cars a day. It must be remembered that the greater percentage of loading continues until 6 p. m. before which it is permissible to enter private industry tracks or to pull the cars from the freight houses where merchandise is loaded. After the completion of the loading, bills must be furnished, cars carded for switching purposes, then switched into transfers and taken to the proper train yards to be classified into trains, which must be moving toward their destination by midnight. A large number of the loads travel a distance of 15 miles on transfers from the loading point to reach the train yard.

After the day's loading has been gathered up and forwarded, it becomes necessary to place the cars for the next day's unloading, as well as the empties for loading, at the warehouse, industry and team tracks, elevators, wharfs, etc. This work is done after midnight and all cars are spotted by 7 a. m.

In addition to the handling of this local business, six divisions bring in and take out an average of about 5,000 road cars every 24 hours. During the busy season from 90 to 100 freight trains and 100 passenger trains arrive and depart daily. To handle the above described traffic successfully as well as economically requires a well drilled, organized and disciplined force.

At this writing it takes 82 switching crews, and 63 engines to do the work—a large percentage of the switch engines being double-crewed and working continuously. Our standard switch engines weigh 127,000 lb. on the drivers and have 28,000 lb. tractive effort and 180 lb. boiler pressure. They have 51 in. driving wheels and 19 by 26 in. cylinders. These engines, of which we have 36 in service, are utilized mostly in industrial switching, as they ride almost any curvature. Larger road engines are used for transfers and in the switching of trains in train yards. These engines vary from 189,200 lb. on drivers, with 43,000 lb. tractive effort, 200 lb. boiler pressure, 63 in. driving wheels and 23 in. by 30 in. cylinders, to the Mallet compound engines having 323,000 lb. on drivers, 76,000 lb. tractive effort, 200 lb. boiler pressure, 57 in. driving wheels, and 23½ in. by 37 in. by 30 in. cylinders. Of this latter type of engines we are using three. Of the 82 switching and transfer crews, 52 are working days and 30 nights. This number, of course, increases and decreases in accordance with the volume of business done, running as high as 92 crews for the last three months of the year. In connection with the work mentioned, eight of the 82 crews devote their entire time to switching in train yards, and seven crews work exclusively on the shop and repair tracks.

Briefly the organization to handle this large terminal is as follows: In addition to the principal freight agent, we have six sub-agents located at the main industrial centers, who have entire charge of their districts and maintain separate station accounts. The superintendent of terminals has charge of the entire terminal, including the agents, switching crews, tracks, the moving of traffic, and to a large extent all buildings except those located at the shops. He is assisted by a station master, who has charge of the passenger traffic, a day general yardmaster and general assistant, a night general yardmaster and general assistant, and 20 yardmasters, of which 12 work days and the balance nights.

Both day and night, general yardmasters exercise general supervision over the entire terminals, so far as the switching power and crews are concerned. They must keep the crews at the minimum at all times, but not sacrifice the service. They direct and outline the work, divert the power from one yard to another to help out when required, hire all yardmen and place them, make preliminary investigations of all misdoings and report direct to the superintendent.

The duties of the day and night assistant general yardmasters consist in directing all movements in the terminal by telephone from the centrally located general yardmaster's office. The prompt arrival and departure of trains into and from the different yards and tracks and the movement of transfers are entirely under their jurisdiction.

The 20 yardmasters are selected with great care, and as a rule are promoted from the ranks. As assistants to the yardmasters we have yard and train clerks, who can expedite the movement of cars by promptly handling the train lists, waybills, carding cars, etc. In these terminals we have 33 such clerks—23 days and 10 nights. The day force gets into action at 7:00 a. m., taking a track list of every car in the terminals. By 10:00 a. m. this information has been obtained and the lists are sent to the car record office, centrally located in the passenger depot, by special messengers.

In making the car records, a visible typewriter is used with a roll of tape one inch wide, perforated into inch squares, each having a hole at the upper end for the purpose of hanging on a pin. The number of the car and initials, time of arrival, number of train and name of division and date of arrival are put on the tag. The numbers of all cars shown on track lists, initials, number of track, where located and date of location are also put on the tags. Reports showing the movement of cars between districts in the terminal are also received and put on tags, so that it is possible to follow the movement of a car from one district to another and promptly locate it, while reports of cars loaded in the terminal during the day are made and put on tags showing the district in which car is loaded.

Different colored tags are used to designate the service the cars are in. White tags indicate a loaded car arriving; yellow, an empty car arriving. Similar colors are used for loaded or empty cars shown on track lists; red for delivery to connecting lines; blue for cars received from connecting lines; pink, for cars loaded in the terminal and brown for departure from the terminal.

All tags are taken from the typewriter as fast as made and sorted on aluminum pins in numerical order. These pins are about six in. long, and are provided with a washer on one end and inserted in a hole in a board divided into 1¼ in. squares. The boards have a capacity of 100 pins each. The tags are separated into thousands and then divided into hundreds by sorting on the pins.

After each day's business is completed the tags are ready for filing on the main records, consisting of nine boards having a capacity of 500 pins each, or a total of 4,500 pins. This provides sufficient room for the recording of every car arriving in the terminal and until it departs.

This method gives a complete record of the movement and location of all cars in Milwaukee and is available for reference at all times. An average of 12,000 cars movements is recorded daily. All reports for each day are recorded the same day. The office force consists of the manager, two assistants and 15 girl typists. It will be readily seen that by calling up this office after 12:00 o'clock noon, the location of any car in Milwaukee may be ascertained.

The cost of handling through cars which do not originate at Milwaukee varies from $0.125 to $0.145 per car. The cost of handling all cars passing through, including those originating at Milwaukee, varies from $0.69 to $0.80 per car. The average expense per ton for handling freight at Milwaukee in carload shipments amounts to 8.4 mills and for l. c. l. shipments $0.51 per ton.

No large terminals can be operated successfully and with economy unless co-operation and harmony exists among all of the employees doing the work. Get-together meetings are held a number of times each year and all of the different phases brought out by the employees are discussed. When any ideas with merit are advanced they are adopted and given a trial. In this way everybody becomes interested and is anxious to advance a proposition of his own.

THE DANGER OF FREIGHT CONGESTION*

By Arthur Hale
General Agent, American Railway Association

There is a larger surplus of cars now than there has ever been in the fall. Almost always October and November are periods of car shortage. Even in the three lean years, 1908, 1910 and 1911, the car shortage in October ran up to fifteen and twenty thousand cars. This year it has not reached 2,500 and the surplus is 154,000, nearly 40,000 higher than in the worst year—1908.

It is well known that in time of peace one should prepare for war. We ought to believe in the future of this country, and any one who believes in the future of this country knows that the time will come next year very likely when there will be a demand for transportation and when every freight car will be needed. When that time does come some kind of a car shortage is inevitable, but we should do everything we can to prevent it and to reduce it. Now there is one cause of car shortage which can almost always be eliminated if we take it in time. That is the congestion of loaded cars.

Car shortages are bad enough anyway, but they are most trying when they are accompanied by congestions of loaded cars. When all the cars in the country make a reasonable movement, and despite this a car shortage occurs, it can only be caused by such a sudden increase in business as could not be foreseen. When on the other hand car shortages are accompanied or caused by congestions of loaded cars it is another matter, and every one is to blame who has had it in his power to prevent the congestion and has failed to do so.

There were serious car shortages in the fall of 1906 and the fall of 1907, and these car shortages were accompanied by serious congestions of loaded freight cars. Since 1907 we have been more fortunate. Our freight cars did more work in every October between 1909 and 1913 than they did in the Octobers of 1906 and 1907. It was only in 1912 that the shortage exceeded 50,000 cars, and while there were some congestions they were by no means as serious as those of 1906 and 1907.

Why then, it may be asked, is there more danger of congestion in 1915 than in the preceding years? The answer is easy. Since 1907 the facilities of the railways have generally been ample to handle the increased freight business which was offered even in the record months of October, 1912, and October, 1913, and these months show a tremendous increase even over the prior maxima of 1909 and 1907.

Present conditions, however, are not favorable to the development or even the maintenance of railway facilities. If there is as much business in October, 1915, as there was in October, 1913, the railways will undoubtedly have the same facilities that they had in 1913, but I see no reason to think that they will have more facilities nor can I see how these same facilities can be maintained at quite the same point of efficiency as in 1913. If the business should show a decided increase there is danger of congestion.

But there are more ways than one to create a congestion. If a railway accepts for movement more loaded freight cars than it can handle it is wholly responsible for the resulting congestion, but if it accepts for movement cars which it can handle and its consignees cannot, the public shares the responsibility, and for this reason the matter is now brought before the National Association of Railway Commissioners in the hope that steps may be taken to entirely avoid in future all congestions for which the public is in anyway responsible.

There has never been a great freight car congestion when all freight has been properly covered by demurrage rules. Whenever any great car congestion has occurred there has been some imperfection in the demurrage rules, and a considerable proportion of the cars which composed the congestion were held without payment of demurrage.

The most extensive freight car congestion in our memory was what was known as the "Arizona coke congestion" where thousands of cars of coke destined to points in Arizona were held for weeks and months on the lines between the Alleghanies and the Rocky mountains. This congestion accompanied and to some extent caused the car shortages of 1907, and yet the great majority of these cars were held for weeks and months without the payment of demurrage by the consignees, although the shipments were prematurely made in order to save those consignees from an increased freight rate.

The great congestions of coal and of cotton have practically ceased since demurrage has been applied at points of transshipment. The annual winter blockades of coal to and via certain cities of the central west have been greatly reduced since a charge has been made for the reconsigning privilege and the free time for reconsigning has been reduced.

Thus the old-fashioned congestions which we have had always with us have been largely mitigated by a more thorough enforcement of the National Code of Demurrage Rules originated by the National Association of Railway Commissioners, but we have confronting us a set of new conditions for which possibly our old measures are not calculated.

The business which is now increasing is the export business, and further increases in business will probably be in the same direction. Cars loaded with export freight may be expected at the seaboard in unprecedented numbers. Are our present demurrage and storage rules sufficient to prevent congestion? Is the national rule covering free time on reconsignments universally followed? Is the constructive placement rule universally followed, and are consignees paying demurrage on all freight cars which they cannot handle, when these cars cannot be placed for them?

It is to be feared that these questions must be answered in the negative. Much has been done locally to provide proper demurrage rules on freight to be trans-shipped by water, but excepting at one gulf port it must be confessed that the demurrage and storage rules covering export freight are such that many a loaded car can be held indefinitely at seaboard without any payment by the consignee. Progress has been made with the reconsignment rules, but there are too many exceptions to the rule and too many cases where cars which are not wanted at destination can be delayed by repeated reconsignment. The constructive placement rule is generally enforced to the letter, but at certain points there are minor congestions which recur so frequently as to almost prove that cars are being held free. The subject is thus presented to the National Association of Railway Commissioners in the hope that throughout the country, the commissions, the public and the railways will unite, for such a proper amplification and enforcement of the rules that no freight cars can be held free for any one and that the congestion of loaded freight cars will become an impossibility on every road whose facilities are ample.

It may be urged that we can handle an increased export trade without blockading our ports if we use the embargo. There was never a greater mistake. An embargo is the locking of the door after the horse is stolen. Railways cannot foresee shipments as shippers themselves can. Shipments should not be made to congested points or to points in danger of congestion, but the railroads should not be the one to impose the embargo. The shipments should be regulated by the shippers and consignees who alone can regulate them properly. Many shippers and consignees have enough public spirit and believe enough in fair play to properly regulate their shipments without any compulsion, but they should be protected as much as the railways against the shippers and consignees who will not properly regulate their shipments except under the spur of a personal advantage. It is for them and for them only that demurrage codes have been devised, and bitter experience has taught us that it is only by proper enforcement of proper demurrage rules that we can secure the help of all the public in keeping our freight movement free.

*Paper presented at annual convention of the National Association of Railway Commissioners, Washington, D. C., November 17-20, 1914.

The Reasons for the Unpopularity of Railroads*

Opinion Expressed That the Public Is Beginning to See the Necessity for Fair Play Towards the Railroads

By A. M. Schoyer
Vice-President, Pennsylvania Lines West of Pittsburgh

People are saying that they are tired of hearing the continued calamity howl of the railroads. Do not they suppose the railroads are tired of howling? But what other remedy is left? State and interstate commissions were created for the purpose of correcting railroad evils and of acting for the people as against the railroads, thus making a convenient body before which the victims or opponents of the railroads can appear to urge their woes, but there is no body created to product the railroads against their opponents. Therefore, the railroads are always on the defensive, and, being before bodies which have been created to restrain them, those bodies are naturally not particularly favorable to them. The state railroad and utilities commissions and the Interstate Commerce Commission were created to prevent undue prosperity on the part of the railroads or, at any rate, to act as the protectors of the shippers and the public against them. The prosperity of the railroads, therefore, matters but little to these bodies, except when, incidentally (since these commissions are usually composed of fairminded men), they may be impressed in passing with the injustice which the existing situation so often creates. Yet it is seldom that a body or an individual or a business ever publicly favors the railroads' cause. Woe to the man who does so. If he is a banker, the question is at once raised, "What shall we do to cut the bond which unites the railroads and Wall Street?" If he is a business man, "What do you sell the railroads?" If he is a lawyer, "Who retains you?" If he is a public officer or legislator, "Corruption!" is the cry. Sometimes fair commercial bodies resolve in favor of the railroads in rate or other contentions, but this does not necessarily mean that the paid traffic representatives of such bodies will support the railroads' contention, and if the traffic representative afterwards publicly attacks the roads he retains his position, and often with added honor and authority.

I see in the newspapers that the Georgia Railroad Commission has decided not to order the railroads of Georgia to make any more improvements or expenditures until better times set in. This is an honorable, fair and sensible course, and it is greatly to be desired that similar organizations elsewhere should take the same advanced stand.

The unprejudiced, independent newspapers of the country have lately taken up the cudgels for better treatment of the railroads. Leading editorials are appearing with more and more frequency in the great, influential daily and weekly papers calling for justice. The more conservative of the magazines are making similar demands, and where, a few years ago, there were a number of magazines muck-raking the railroads, there are today but few following that course, and I do not believe that the few find any measure of popularity or success following their attacks. The rank and file of the public of this country is not today opposed to the railroads. There has been a complete revolution as compared with a few years ago. Nothing more clearly demonstrates the change in public sentiment than Missouri's vote on the extra crew question in the recent election. The bill was overwhelmingly defeated and the Missouri citizens, by a tremendous majority, voted that they would not have this extra burden placed upon the railroads of that state.

Notwithstanding the changed attitude of the public, the railroads are not yet popular. Not with the public bodies which regulate them; certainly not with Congress and the legislative bodies which legislate against them; not with a majority of the great leaders of the state and country; and probably not with the rank and file of the people.

The railroads are 100 per cent better than a few years ago, even though they are not perfect today. It is claimed that in olden times railroads gave passes, granted rebates, spent money in politics, were arrogant, did not provide facilities and were very independent in all directions; but they were popular then. If the people did not like them, they did not say so. There were but few laws passed to regulate them. Now, all this has changed. For a number of years none of these practices has been followed. There are no rebates, there are no passes, except those given to men who are legitimately entitled to them by reason of railroad employment and to the families of those men. The railroads are anxious to provide facilities to take care of the business of the country and, I believe, they are usually courteous in their treatment of the public. But now they are unpopular. No one hated them when they were said to be bad. Why do they hate them when they are so much better? The leaders who liked the railroads then often hound them now.

I have a tremendous faith in the sense of justice of the American people. I believe they have decided that the day has come to give the railroad its chance to live and to expand, and, sooner or later, their servants, these legislative and administrative bodies and executives I have been talking about, will learn the facts, and, when they do, how quickly they will change front!

The railroads must keep out of politics, but the railroad unions can go into politics and they do, and legislative bodies hasten to pass the laws they demand. Can it be because the legislator fears the power of the vote of the labor union men? No. It must be because the legislator knows what the experienced railroad officer does not know; that electric headlights are safer than less powerful lights, even though they blind the engineman, make danger signals look like safety signals and cost hundreds of thousands of dollars which are greatly needed for safe operation of railroads. Or because the experienced legislators know better than the railroad officers what effect another brakeman on the crew will have. To us, this extra brakeman appears to be an added source of danger; this man who is of no use, but who must be carried, and who is so often in the way. On one railroad in this country, this extra man is not allowed to do any work, but sits in solitary grandeur in the caboose or in the coach out of danger's way, riding over the road daily and drawing his ample pay on each succeeding pay day.

Why two pay days per month were required, our men can not tell us. Generally, they did not want it, but their leaders thought it would sound well and cracked the whip and some of the legislatures rushed to pass the law. The railroads spend hundreds of thousands of dollars yearly in the added expense of paying men who do not need their money twice a month and who would be better off with one monthly pay day.

On practically all railroads in this territory, every dollar spent for unnecessary things or for needless luxuries made obligatory by law, such as electric headlights, palatial cabooses, extra crew laws, unnecessary stations, double pay, hours of service laws, boiler inspection laws, changing the ladders on freight cars from one side to the other, self-cleaning ash pans, etc.—I say that every dollar spent for unnecessary things such as these is a dollar necessarily withheld from the necessities of railroad life, such as rails, cars, locomotives, ballast, more main and yard tracks, etc.

For years, the railroads have been unable properly to care for

*Abstract of an address before the Peoria Transportation Club, Jefferson Hotel, Peoria, Ill., November 13, 1914.

public needs of the day, let alone tomorrow. When this country finally awakes from its long industrial slumber, what an avalanche of reproach will fall upon the heads of the luckless railroads who have found it utterly impossible to beg, borrow or earn money for needed facilities.

The railroads, generally, are where they can go no further. They have stopped, but they are not standing still; they are retrograding. Receiverships are becoming more plentiful. As a rule, legislative and executive bodies, and men in power, are not favorable to railroad interests. The press of the country has changed front; the public is doing so. Even those who have changed front, however, are being governed by a stirring sense of justice and not because they like the railroads. There are two questions to be answered:

First, what can the country do to prevent the bankruptcy of the railroads?

(a) Stop passing anti-railroad laws and rulings at the demand of paid traffic managers, labor union leaders, and any one who can secure a post card and a fountain pen.

(b) Repeal the obnoxious and unnecessarily burdensome laws and rulings in effect. I have named some of them.

(c) Stop continually increasing railroad taxes.

(d) Permit the railroads to raise their rates sufficiently to give them a living income and to enable them to provide a modest surplus as a basis for credit.

(e) From time to time, consult leading railroad officers as to the needs of the railroads, generally, and as to the effect of proposed legislation. The railroads stand ready to co-operate in all needed and wise reforms.

(f) Cultivate a different sentiment. When praise is merited, try praising, instead of continual criticism, and endeavor to restore the railroads to a position of respect in the eyes of the general public. Then hold them strictly responsible for results.

Second, what can be done to remove existing antagonisms and make the railroads more popular?

(a) Let railroad men who come in contact with the public, treat it with consideration. The public may not know as much about railroading or railroad matters as we do, when they ask questions, but let us forget this and treat them courteously.

(b) Let the railroads refrain from arbitrary action in matters of rates and service. Because we are badly treated, there is no reason for passing it on.

(c) Let the owners of the railroads talk about the good qualities of the roads, advocate their cause, defend them and praise them.

(d) Let an effort be made by the better educated and more experienced railroad men of the country to enlighten the teachers of political economy and of railroad economics in the colleges and universities of the country, so that they may better understand today's railroad situation and develop in the minds of their students a comprehension of the changed conditions which have come to pass and a more cordial feeling toward the railroads. There is a necessity for a changed viewpoint by the young men pouring out of our universities and colleges everywhere if we intend greatly to increase railroad popularity.

(e) Let the railroads take the public, generally, and the interested public, especially, into their confidence as to what they are trying to do, why they are trying to do it and the difficulties in the way. There is nothing secret in railroad operations today. If the railroads wanted to have secrets, the laws would absolutely prevent it, since their books must be open to inspection at any time.

The railroad men brought up under the old regime are no longer in control. The men who are managing the railroads of this country today for the owners of the roads would never go back to the practices of ancient times, if they could, and the times have so changed and the public conscience and the general laws are such that no railroad manager could do so for a minute, even if he so desired. Then let these reformed railroads take their proper position. Let us stop "knocking" and try some other method.

I am not an opponent of wise railroad regulation, but, on the other hand, have always advocated it. But I am opposed to destructive regulation and I fear we have reached that stage. And we are today confronted with the possibility of new and more sweeping laws, rulings and orders, which will take from the railroad manager the application of the train and flagging rules which he feels are necessary for the success and safety of his railroad, and substitute rules which may be splendid in themselves and for some railroads, but not applicable to his own; or rules which will attempt to substitute specific instructions for more general ones, thus relieving the individual employee of his own responsibility. There is threatened the substitution of government regulation for the individual investigation of accidents and home discipline. There is threatened the enforced application of an automatic stop which will prevent collisions; and when we get this automatic stop and the engine and train crews no longer feel that eternal vigilance is the price of safety, what will result? Added safety or added danger? The automatic stop will be a machine and no matter how perfect, *but* a machine, and there will be times when it will fail—and then, God pity us!

If government regulation ever proceeds so far that it hampers the individuality of the general manager in handling his railroad and binds his hands in the matter of rules and discipline, and relieves the individual employee of his sense, of his responsibility, good-bye to safety and success.

I can not believe that destructive regulation will go further than it has. It must be that the force of public opinion will soon be felt and then let the railroads, having fully learned their lesson, pick up the fragments and build a new structure upon solid foundations of obedience to the law, reasonable financial results, and fairness and equity to public and employee.

TRAIN ACCIDENTS IN OCTOBER[1]

The following is a list of the most notable train accidents that occurred on the railways of the United States in the month of October, 1914:

Collisions.

Date.	Road.	Place.	Kind of Accident.	Kind of train.	Kil'd.	Inj'd.
13.	Georgia	Madison.	bc.	P. & F.	0	38
18.	New York Central.	Indian Castle	rc.	F. & F.	2	1
22.	Pennsylvania	Kane.	rc.	F. & F.	1	4

Derailments.

Date.	Road.	Place.	Cause of Accident.	Kind of train.	Kil'd.	Inj'd.
3.	Hoosac T. & W.	Readsboro.	unx	P.	0	15
7.	Balt. & Ohio	Cove Run.	.....	P.	0	39
†17.	Del. L. & W.	Fulton, N. Y.	malice	P.	2	31
18.	Morgan's L. & T.	Broussard.	malice	P.	0	15
18.	Pennsylvania	Glen Union.	b. axle	P.	0	6
19.	Missouri K. & T.	Bartlett.	unx	P.	3	12
28.	Ches. & Ohio	Barboursville.	unx	P.	0	18
31.	Del. Lack. & W.	Alford.	b. rail	P.	0	33

Other Accidents.

Date.	Road.	Place.	Cause of Accident.	Kind of train.	Kil'd.	Inj'd.
†11.	Denver & R. G.	Grand Junc.	rock fall	P.	3	14

The trains in collision at Madison, Ga., on the 13th, were eastbound passenger No. 2 and a westbound freight. The passenger ran over a misplaced switch and into the head of the freight train, which was standing on a side track. Thirty-five passengers and three employees were injured. The responsibility for the collision is charged against the men in charge of the freight.

The trains in collision near Indian Castle, N. Y., on the 18th were eastbound through freights. The fireman and one brake-

[1]Abbreviations and marks used in Accident List:

rc, Rear collision——bc, butting collision——xc, Other collisions——b, Broken——d, Defective——unf, Unforeseen obstruction——unx, Unexplained——derail, Open derailing switch——ms, Misplaced switch——acc. obst., Accidental obstruction——malice, Malicious obstruction of track, etc.——boiler, Explosion of locomotive on road——fire, Cars burned while running——P. or Pass., Passenger train——F. or Ft., Freight train (including empty engines, work trains, etc.)——Asterisk, Wreck wholly or partly destroyed by fire——Dagger, One or more passengers killed

man were killed, and one other employee was injured. The collision was due to excessive speed in dense fog, under a caution card. Also the conductor and flagman of the leading train are held responsible for not affording proper protection by flag.

The trains in collision near Kane, Pa., on the 22nd, were eastbound through freights. The caboose of the leading train, which was moving slowly, was wrecked. An engineman was killed and four other trainmen were injured. There was a dense fog at the time of the collision.

In the passenger train derailed near Readsboro, Vt., on the 3rd, 15 passengers were injured. Three cars fell down a bank.

The train derailed at Cove Run, West Va., on the 7th, was northbound passenger No. 4, and 36 passengers and 3 employees were injured, most of the injuries being slight. The train was running about 25 miles an hour. The tender was the first vehicle to jump the track.

The train derailed near Fulton, N. Y., on the evening of the 17th was a northbound express, running at full speed. All of the cars in the train left the rails except the last one. The engineman and fireman were killed and 26 passengers and 5 trainmen were injured. One steel passenger car was turned completely around, but its occupants suffered only minor injuries. The derailment was due to the malicious misplacement of a switch. The light on the switch had been made to show green, all right.

The train derailed at Broussard, La., on the 18th, was westbound passenger No. 11. Every car in the train left the rails, but the number of persons injured is reported as only 15. The derailment was caused by loosening of spikes, presumably by persons who had intended to rob the train.

The train derailed at Glen Union, Pa., on the 18th was eastbound passenger No. 52. The baggage car fell down a bank. The engine and the entire train of seven cars left the rails. The passenger cars were of steel and only six passengers were injured, none seriously. The cause of the derailment was the breaking of one of the axles of the tender.

The train derailed near Bartlett, Tex., on the morning of the 19th, was northbound passenger No. 6, and the engine was overturned. The first three cars of the train were turned crosswise of the track, but the cars behind these were little damaged, and most of the passengers felt no serious shock. Three men on the engine were killed and six passengers and six employees were injured.

The train derailed at Barboursville, W. Va., on the 28th, was westbound passenger No. 1. Three cars were ditched. Eighteen passengers were injured.

The train derailed near Alford, Pa., on the 31st, was eastbound passenger No. 32, consisting of five cars. Three cars fell down a bank and 30 passengers and 3 employees were injured. The derailment was due to a broken rail.

The train which was wrecked near Grand Junction, Col., on the 11th, was westbound passenger No. 3, and the cause of the disaster was the fall of a mass of rock from the second ledge about 200 ft. above and from the track. The train was running at ordinary speed when a rock weighing 10 tons fell on the rear end of the smoking car, which was the third car from the engine, and broke the couplings. This applied the air brakes and the train was soon stopped; but at almost the same instant a boulder weighing perhaps five tons fell on the day coach and the roofs of the two cars were wrecked. Three passengers were killed and 14 injured.

Electric Car Accidents.—Of the half dozen serious collisions or derailments on electric roads reported in the newspapers as occurring in the United States during the month of October, three appear to have been attended by fatal results; one at Denison, Tex., on the third, two persons killed; one at Syracuse, N. Y., on the 9th, four persons killed; and one at South Glastonbury, Conn., on the 23rd, one person killed.

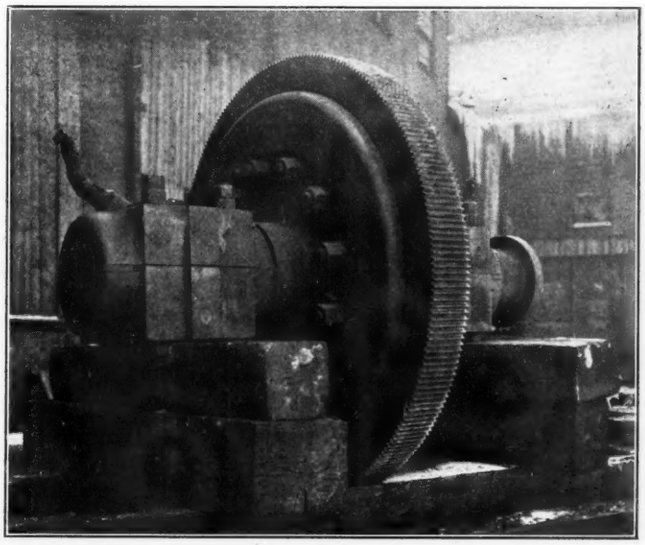
RAILWAY CONSTRUCTION IN INDIA.—Sanction has been accorded for a survey by the Bengal-Nagpur Railway for a line 66 miles long between Gopalpur and Russelkonda.

THE MECHANICAL ELIMINATION OF SEAMS IN STEEL RAILS*

BY ROBERT W. HUNT
President, Robert W. Hunt & Co., Chicago, Ill.

The increased weight of rolling stock and speed of traffic have necessitated increasing the size of the rail sections, and hence their weight; as many of the details of rail manufacture have been changed with such alterations, it is not surprising that new and unexpected physical weaknesses have developed in the heavier rails. One of the most notable has been the failure through crescent-shaped pieces breaking out of the rail flanges, followed by at least one, and in many cases several, ruptures across the whole section of the rail. Investigation has showed that in practically every instance of such failure there was a more or less pronounced seam running longitudinally in the bottom of the rail near its center, and thus immediately under its web. This seam occurs at the top of the curve of the crescent-shaped break and is undoubtedly the point at which the fracture starts.

Those familiar with steel rail making have known that it was practically impossible to make rails entirely free from seams, and that as the seamy conditions of the steel forming the head of the rail increased, its wearing quality would decrease, but I



Tool Used on Milling Machine

think it was not until the disastrous experiences with the "moon-shaped" failures that the danger from seams in the base of the rails was fully realized. It is true that rails with actual flaws in their flanges have been rejected as first-quality ones and that a very pronounced seamy condition of the bottom of the rail would also cause its rejection. Such rejections were the cause of frequent disputes between the mill operatives and the inspectors, the point being as to how far the inspectors were warranted in carrying their condemnation; but, as already said, it was not felt that a single seam would be dangerous unless very pronounced.

The crescent-shaped breaks were of such frequent occurrence that they indicated a very serious condition and led rail makers to experiment with the design of their rolling passes, with a view to obviating the formation of the bottom seams. It was found that fewer seams were produced by such changes, but they were not entirely eliminated. While more or less successful in preventing the formation of seams through lapping on the bottom of the rails, the formation of seams in other parts of the section was not particularly affected.

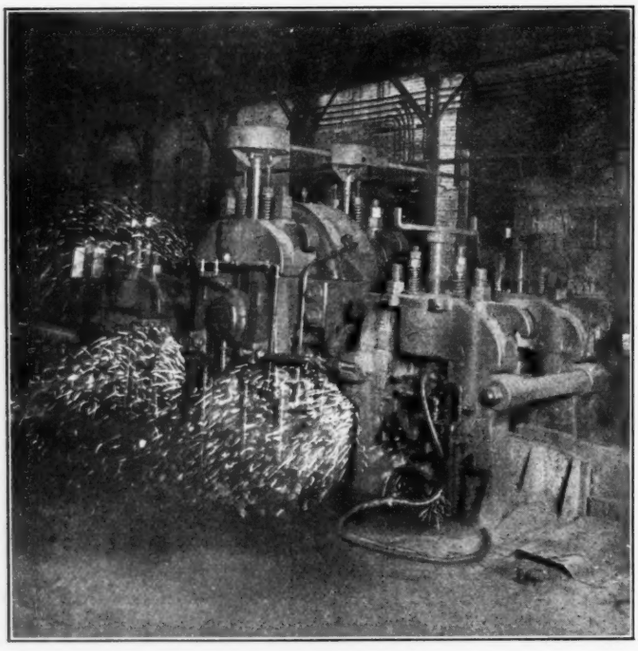
T. H. Mathias, assistant general superintendent of the Lacka-

*Abstract of a paper read at the annual meeting of the American Society of Mechanical Engineers, New York, December 3, 1914.

wanna Steel Company, determined that the most certain way of getting rid of seams was to remove that portion of the metal which contained them, and, as applied to steel rails, thus to eliminate them from both the base and head of the rail. Mr. Mathias reasoned that the primary causes of seams existed previous to any rolling of the steel, in fact, were incident to the casting of the molten metal into ingots. He knew that disk-like apertures were formed on the sides of ingots while the molten metal was being cast and were probably caused from air being entrapped against the sides of the ingot molds by the hot steel as it raised in the molds, a condition which was not controlled in regular manufacturing routine. It will be appreciated that, as the section of the ingot is reduced and elongated in the rolling process, so, of course, will the apertures be stretched longitudinally and thus be formed into seams.

Mr. Mathias demonstrated that there is another constant condition present in the rolling of large steel ingots, in the formation of a decarburized surface, about 5/16 in. deep on all four faces, and containing from eight to ten points lower carbon than the metal immediately under it, the decarburized envelope undoubtedly being produced through the oxidizing conditions to which ingots are subjected in the soaking pits where they are heated preparatory to rolling. A thick oxide scale is always formed on the surface of ingots in the pits, so that conditions are invariably present for the production of such a layer of lower carbon metal on their outside faces.

Mr. Mathias was convinced that during the process of rolling ingots into rails it was practical to remove mechanically the parts of the enveloping steel which would form the top of the head and bottom of the flange of the rail, and experimented

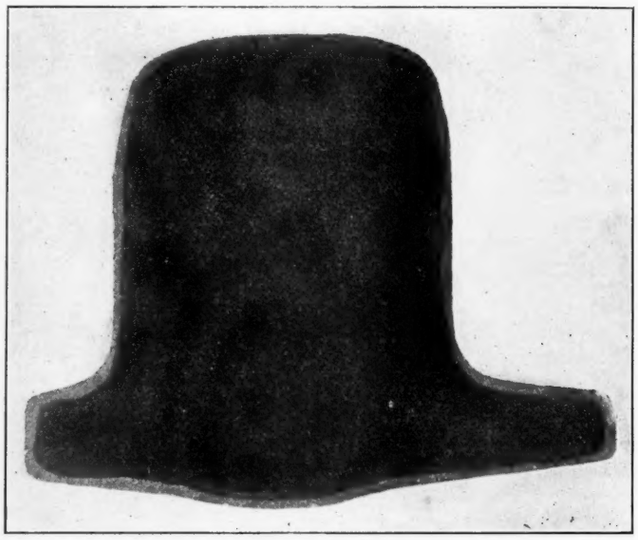


Hot Sawing or Milling Machine in Operation

accordingly. He designed and his company installed as an addition to their rail train, a milling, or hot-sawing machine, to cut off that metal without retarding the regular operation and thus interfering with the production of the mill.

The ingot is reduced in the blooming rolls to an 8-in. by 8-in. cross-section, and after cropping the ends the bloom is further reduced in the roughing or shaping stand of rolls by five passes. When it leaves these rolls, it is approximately 75 per cent finished and at this period it is carried to the right and entered between two pinch rolls with its base or flange side up. A bar which will make four 33-ft. rails is about 60 ft. in length at this point in the rolling operation; therefore, the area of metal to be cut off or removed in the milling machine is approximately ⅛ in. deep, 7 in. wide and 60 ft. long. It is driven through the pinch rolls at a rate of 60 ft. in 30 seconds. The pinch rolls have a draft of about ⅜ in. and thus force the bar between the two milling saws, which are so arranged in the housing that they may be raised or lowered as desired. From 1/32 in. to 3/64 in. of metal is milled from the head and base of the bar, the front end of which, immediately on passing from between the rolls, is caught by a second set of pinch rolls which have a draft of about 1/16 in. These pinch rolls force the bar between the tools, pull it from between them, and also hold it in practically perfect line for the milling operation. The milling apparatus is driven electrically and requires about 600 hp. for its operation.

As the milled dust or particles of steel are thrown out, they are hit by water under pressure which forces them into a chute and also prevents the material from adhering together. They are carried below the mill, through this chute, and are caught



Cross-Section of Bar Preparatory to Entering Milling Machine

in boxes or receptacles suitable for charging as scrap into the open-hearth furnaces.

The milling tool is 5 ft. in diameter with an 8-in. face and revolves at a peripheral speed of 2,500 ft. per minute, thus causing an engagement of about 400,000 teeth per minute on the hot rail bar. The teeth are of 0.80 carbon steel, and it has been demonstrated that they will mill at least 30,000 tons of material without requiring dressing.

The milling on the flange does not reach the extreme edges of the bar, and on the head side does not affect the corners. Either by a modification of the shape of the piece as presented for treatment in the milling machine or, what will probably be more practical, changing the face of the tool, the milling can be extended to the extreme edge of the flange portion of the bar and somewhat around the corners of the top or head side. This will undoubtedly be perfectly practical and thereby eliminate the seams which may be located in those parts of the bar. The primary object has been to eliminate the seams from the central portion of the bottom of the rail which had been the starting point of the moon-shaped failures, and to remove them from the top or bearing surface of the head of the rail. Personally I think it will be desirable to extend the milling by the use of convex-faced tools.

The work of rolling which the steel receives after the removal of the more or less laminated metal, must produce a better product than if such elimination had not taken place, and it should not only make them less liable to breakage on account of seams in their flanges, but also enable them better to resist the abrasive effects of traffic.

During the many years of my connection with rail making

I have examined a great many etched specimens of rails, not only directly in connection with the process under consideration, but for various other reasons. From such experience I can fully appreciate what Mr. Mathias has accomplished. The surfaces of practically all rails, when etched, will show some seams on both the base and head, and very frequently the extent of such defects will not be appreciable if the scale has not been removed. Even then, it is not always an easy or certain matter to estimate the depth of the seams. When the rails have been subjected to the Mathias milling operation and still show pronounced seams, it has been found that breaking tests will practically always develop the fact that the suspicious marking is an actual seam.

As the original defects on the sides of the ingots vary in extent, so will the character of the resulting seams vary, and it can be readily appreciated that some of them may have been too deep to have been completely eliminated by the milling.

While I have confined myself to the matter of steel rails, it is patent that the process will be of great value in the preparation of blooms for axles and all other kinds of forgings. As is well known, it is practically the universal custom to endeavor to remove the seams developed in rolling axle billets by chipping them out through the use of pneumatic hammers, and for some of the higher characters of forgings, notably for automobile parts, the endeavor to eliminate the seams is carried to the extent of turning off the whole surface of the billets. I am confident that by the Mathias plan the greater part, if not all, of such work can be superseded, and I regard the invention and its practical installation as a notable achievement in the art.

GETTING CITY PEOPLE BACK TO THE COUNTRY*

By F. H. La Baume

Agricultural and Industrial Agent of the Norfolk & Western

One of the most urgent needs at this time is for the division of large areas into small farms, and the establishment of thousands of American families on these little farms under proper instruction that will enable them to tide over the first few years of struggle and adversity until they can acquire a competence along with the experience that will insure their continued livelihood and prosperity.

Heretofore many of the methods suggested for getting the landless man back to the manless land have been more or less socialistic or confiscatory, but this need not be so. To illustrate, I will, with your indulgence, explain what we are endeavoring to do in Virginia along these lines.

We have secured in one of the most attractive sections of the Shenandoah Valley a body of some eight hundred acres of good land adjoining a town and station within a night's ride of Philadelphia and New York. This land has been divided into small farms of five and ten acres each. In the center of the tract we have erected a club house, surrounded by wide porches and furnished with the equipment that goes to make a social gathering place of this kind attractive. It includes rugs and tables, chairs, settees, books, magazines, games, a grafanola, large fireplace and attractive grounds surrounding it.

One of the small farms has been turned over to a practical poultry, garden truck and fruit raiser, and this little farm is being equipped for use as a demonstration and guide for those who come down and purchase the little farms, which are sold on easy terms, with small cash payment and balance on long time at low rate of interest. Blue prints and plans of half a dozen cottages, bungalows and small houses are on file, by the aid of which a settler can erect a comfortable home for his family at a cost ranging from $100 to $1,000. The instructor on the small farm, set aside as a guide farm, is available at all times, and where his advice and counsel are followed explicitly settlers should have no difficulty in getting results.

Our plan of helping others to help themselves is simply applying business methods to selling lands with the risks eliminated and uncertainty dispelled so far as possible. I believe that there is a large and growing class of American business men who recognize the necessity of taking a hand in the national economic and social problems. They only need to be convinced that practical plans can be evolved, and when they are so convinced they will be willing to put their money into it.

While the development that I have outlined above has been in the nature of a personal investment, supervised by those I have appointed to represent me on the ground, there is no reason why this line of business should not be handled successfully by an organization. Holding syndicates could be organized to take over large areas of land, handle the subdivision, purchase equipment, furnish competent instruction and then sell small farms on long time and easy payments to people who give reasonable assurance of their ability to succeed. Profit on the deal should be limited to a reasonable rate of interest on the investment. If this is done and the work is handled efficiently, economically and practically by representatives well equipped through experience to judge land and people, there need be no large element of chance in the undertaking.

*Abstract of a paper presented before the Railway Development Association, Chicago, November, 1914.

INJUSTICE TO RAILROADS

[From the Jackson (Miss.) Daily News]

The fallacy of "expert medical testimony" and the injustice often wrought thereby is strikingly illustrated by the case of W. C. Haynie, a former locomotive engineer employed by the Illinois Central. In January, 1911, nearly four years ago, a jury in the Lincoln county circuit court awarded Haynie damages in the sum of $20,350 for alleged personal injuries. The verdict was based chiefly on the testimony of a distinguished oculist that Haynie would be blind within one year as a result of his injuries. The supreme court affirmed the verdict, and the Illinois Central had to pay the judgment, with interest.

Today, according to the most reliable information obtainable, Haynie is very far from being blind. His eyesight is said to be as good as it was on the day he obtained the verdict. At the trial three noted eye specialists testified that there was nothing wrong with Haynie's eyes, and that he was in no more danger of going blind than any other man. However, the jury preferred to believe the "distinguished oculist" who testified for the plaintiff. Perhaps they thought it wouldn't hurt the railroad company to pay out $20,350, and if there was any question of doubt in the case they were willing to resolve it in favor of the plaintiff.

After obtaining his money Haynie purchased himself a fine home and an automobile, and proceeded to enjoy a life of luxury and ease. He spent money freely while it lasted, and on account of the prominence gained by the conduct of his own case, became popular as an expert witness against railways in personal injury damage suits. Testifying was his diversion. To this day, down at McComb, Miss., where Haynie, lives, he is pointed out as the man who obtained $20,350 from a railroad company, upon testimony that he was going blind, and squandered it within a period of approximately two years. Where Haynie is known his testimony is not so effective as it once was, but that does not help the position of the railroad company, which is still out its $20,350, plus the interest and the costs of defending the suit, which were large.

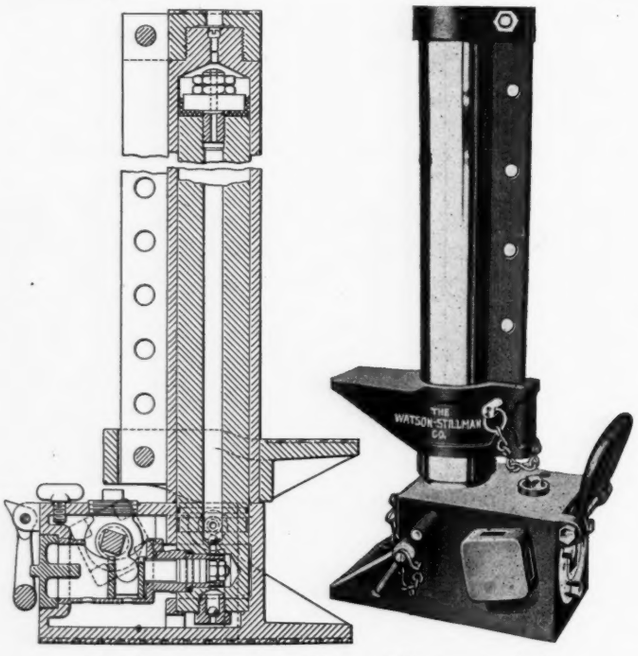
Railway Construction in India.—It is reported that work in connection with the Indo-Burma connection railway survey is to begin shortly. There are three possible routes to be surveyed, the coast route, the Manipur route, and the Yukon Valley route; and the next season will be devoted to the survey of the first of these three. One of the principal reasons for beginning work at this time is the outcry which was raised when Burma was so completely cut off from the rest of the Indian Empire by the doings of the German cruiser Emden.

EMERGENCY JACK

A hydraulic jack, the design of which embodies a number of unusual features, has recently been developed by the Watson-Stillman Company, New York. This jack was designed primarily to meet the demands of an emergency jack for street railway use, but its flexibility of adjustment is such as to make it of value for a variety of purposes wherever lifting work is performed.

The construction of the jack is shown in the sectional elevations, from which it will be seen that the cylinder is the moving part instead of the ram as in the usual type of jack. This allows the pump mechanism to stay in a fixed vertical position and permits the working parts of the jack to be made simpler and more compact than is usually the case. The piston is packed with leather rings and the valves are of the ball type with all passages amply proportioned. The pressure is relieved by means of a key operating a small needle valve. The jack is operated with a special oil, which not only acts as a lubricant, but prevents rust on the working parts and the possibility of freezing. It has no detrimental effect on the packings.

One of the most notable features of this jack is the arrangement of the claw which can be moved vertically upon the cylinder and adjusted to the most convenient height. The claw and the cylinder can be swung through a complete circle without changing the position of the jack or the location of the pump. The operating lever is but 18 in. long, but one man weighing 125 lb. can obtain the maximum pressure with but slight effort. The lever is curved and the socket has a hole in each of its four sides to allow for convenience in operation from practically any position. The jacks are now built in five and ten ton sizes with a ram stroke of 10 in., and are guaranteed by the manufacturer to stand a 50 per cent overload without detriment to any of the parts.

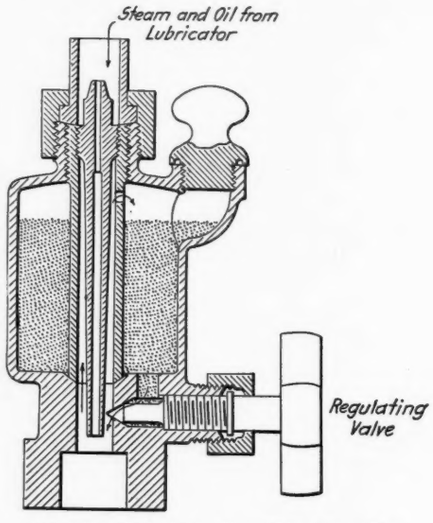


Exterior and Sectional Views of Emergency Jack

TIMBER CONSUMPTION OF AN HAWAIIAN RAILWAY.—The Hilo Railroad, operating about 72 miles of line on the island of Hawaii and the only standard gage railway in the territory of Hawaii uses about 1,000,000 feet of lumber yearly. The company has car shops and a foundry, and builds and repairs its own cars at Hilo. Redwood ties are used in the roadbed. Douglas fir is chiefly used in the shops, though ohia has been found well adapted for car roofs.

GRAPHITE LUBRICATOR

The Graphite Lubricator Company, Detroit, Mich., has placed on the market a graphite lubricator for lubricating with flake graphite the valves and cylinders of locomotives. This graphite is suspended in common engine oil for the purpose of more easily filling the lubricator. The device is used in connection with the oil lubricator as now in use on locomotives. The present oil lubricator acts as the cleaner, while the graphite lubricator delivers graphite to the cylinders and valves as the lubricant. The accompanying illustration clearly shows its construction. The oil line from the steam or gravity-feed lubricator in the cab is connected to the top of the graphite lubricator, and the oil and steam pass to the cylinder and valves through the nozzle shown on the inside. The graphite is contained in the annular space surrounding this nozzle, and the feed is controlled by means of the regulating valve, as shown. The pulsating pressure of the steam will cause the feeding of the graphite through the passage controlled by the regulating valve, and there it becomes mixed with the oil from the gravity-feed lubricator. It is then distributed to the various parts of the valves and cylinders. This lubricator is adapted for use on superheater and compound locomotives (either piston or slide valve type) and especially those engines which experience trouble in obtaining the proper lubrication of the valves and cylinders. It is claimed that the priming of locomotives will not in any way interfere with the proper lubrication of the cylinders and valves where this lubricator is used. It is also claimed that 50 per cent less cylinder oil will be required for lubrication in the cylinders and valves, and that at the same time a better lubrication will be obtained by the use of the flake graphite.



Cylinder Lubricator for Flake Graphite

The lubricator shown, which will hold three ounces of the graphite lubricating mixture, is filled through the plug shown at the top and to the right of the lubricator. It may be attached to any standard steam chest choke-plug fitting, and thus eliminates the use of the choke plugs. One filling of the model A three-ounce lubricator is sufficient for the operation of a locomotive for approximately 250 miles without further attention on the part of the crew. At present the lubricators are made in two sizes—model A, which holds three ounces of lubricant, and model B, which holds six ounces.

GERMAN LOCOMOTIVES DISMANTLED FOR COPPER.—Unconfirmed press despatches from Amsterdam report that the scarcity of copper is such throughout Germany that orders have been given to dismantle as many locomotives on the state railways as possible, in order to use the copper and brass for making ammunition.

General News Department

The safety supervisor of the El Paso & Southwestern announces that the number of employees injured during the month of October was less than half the number reported in October, 1913.

The Baltimore & Ohio Chicago terminal repair shop at East Chicago, Ind., was severely damaged by fire on November 23. Some damage was also done to the cars in the shop, but the amount of loss has not yet been estimated.

The Chicago & North Western, during the fiscal year ending June 30, 1914, carried a total of 33,389,428 passengers, an increase of 2.92 per cent over the previous year, without a fatality to a passenger from any cause.

At a meeting of the American Railway Safety Association, held at Chicago on November 30, it was decided to disband the organization. Some of the roads are considering joining a railroad section of the National Council for Industrial Safety.

According to press reports members of shop craft unions, who struck on the Illinois Central and the Harriman lines on September 30, 1911, because the roads refused to recognize their system federation, have taken a vote on the question of calling off the strike; but there is not as yet any report of the result.

The New York, Philadelphia & Norfolk on January 1 will establish a pension department. The rules will be the same as those of the Pennsylvania Railroad pension system, the New York, Philadelphia & Norfolk being controlled by the Pennsylvania.

The discontinuance of trains on the Buffalo & Susquehanna, which was ordered for December 1, has again been postponed, the Supreme Court at Buffalo having extended the time limit to December 16. There is a bondholders' committee which hopes to find some way in which to keep the road running.

The safety and efficiency bureau of the San Pedro, Los Angeles & Salt Lake reports a reduction of 33.9 per cent in the number of injuries to employees for the year ending October 31, as compared with the preceding year. Three employees were killed, the lowest record in the history of the road, except that for 1909, when 3 were killed.

Michael McCarty, a crossing watchman on the Pennsylvania Railroad at Swarthmore, Pa., has been presented with a loving cup by the Swarthmore Home & School association, in recognition of his faithful service at his crossing for 16 years during which time no person has been injured on the crossing. With the gift were some verses making special mention of McCarty's interest in and care for children.

At the Wednesday evening session of the annual meeting of the American Society of Mechanical Engineers in New York, this week, the John Fritz Medal was awarded to Prof. John E. Sweet, honorary member and past president of the society, "for his achievements in machine design and for his pioneer work in applying sound engineering principles to the construction of the high speed steam engine." This medal is awarded by the four national engineering societies.

Thirty or more passengers in the smoking car of a suburban train on the Chicago, Burlington & Quincy in Chicago were injured on the night of November 24, when the car was set on fire by an explosion of a moving picture film which was being carried, wrapped in a paper package, by one of the passengers, and which presumably caught fire from a lighted match or cigar stub thrown on the floor. The Illinois Public Utilities Commission is making an investigation of the accident.

Work was resumed on December 1 at the shops of the Wheeling & Lake Erie at Brewster, Ohio, and Ironville, in compliance with an order by Judge John H. Clarke, of Cleveland, to the receiver of the railroad. The shops had been practically idle for two months and repairs to cars had been reduced for reasons of economy in order to meet certain interest payments. This policy the court criticized, as neither wise from an economical standpoint nor just from a social point of view.

On the Cincinnati, Hamilton & Dayton, which is owned mainly by the Baltimore & Ohio, but is now in the hands of receivers, discipline without suspension is to be the rule among the employees of the engine and train service. General Manager J. M. Davis has issued a circular announcing that the new system will be put in effect on January 1. This system is the same as that in use on the Baltimore & Ohio, which was the subject of a descriptive article in the *Railway Age Gazette*, January 16, 1914.

The Brotherhood of Railroad Trainmen has filed a statement with the Missouri recorder showing that a total of $16,056 was expended in the campaign for the passage of the full crew bill, which was defeated by referendum vote at the election on November 3. The Missouri legislative committee of the brotherhood, according to the statement, collected $15,880, leaving a deficit of $176. It is stated that the members of the Brotherhood of Railroad Trainmen contributed $14,680 and that $1,200 was contributed by the Order of Railway Conductors.

The Baltimore & Ohio has sent four superintendents on a trip of inspection to the Pacific coast, to be gone ten days; and on the return of the party, four other superintendents will be sent on a similar journey but by a different route. The men going on the first trip are H. B. Voorhees, G. D. Brooke, J. C. Hagerty and E. W. Scheer; and those on the second trip, R. N. Begien, F. B. Mitchell, E. T. White and M. V. Hynes. It is expected that all the general and division superintendents of the company will make trips of this kind, occasion being taken to send them now while business is below normal.

Mr. Love, chairman of the Oklahoma Corporation Commission, is reported as proposing to ask each high school and higher educational institution of the state to offer, as a part of their courses of study, instruction in the making and adjustment of freight rates. He wants to give the next generation in Oklahoma a general knowledge of railroad rates, their application and adjustment, which, he says, are all Greek to the average citizen. Mr. Love must be of an optimistic temperament. If he really wishes for success he should begin by giving the boys a couple of years of real Greek, as a preliminary training.

In the United States District Court at East St. Louis, Ill., November 30, four railroads pleaded guilty to violations of different laws. The Illinois Central pleaded guilty to 12 charges of violating the cattle quarantine law and was fined $100 on each count; three charges of violating the 28-hour law, $100 on each count; two charges of violating laws relating to telegraph operators' working hours, $25 on each count. The Southern was fined $100 on each of two counts for violating the 28-hour law; the Baltimore & Ohio Southwestern $25 on each of six counts for violation of the 16-hour law governing train crews, and the Louisville & Nashville $100 for violation of the safety-appliance law.

International Railway Congress Postponed by War

Word has been received from Berlin that because of the war all preparations have been broken off for the ninth session of the International Railway Congress, which was to have been held there next June. The congress, whose membership consists of governments and companies operating more than half of the earth's railway mileage, is perhaps the most important railroad association in the world. Its sessions are held every five years, the last having occurred at Berne, Switzerland, in 1910. They are devoted to the discussion and interchange of ideas on questions of railway maintenance, equipment and operation. The German government was to have acted as host, and

it was understood that Kaiser Wilhelm would have opened the convention. Some of the American "reporters" have already prepared their papers for the congress.

Russian "Bath Train" for the Front

It is stated that the Russian ministry of ways and communications is sending to the front a "bath train" of over 20 cars, providing 2,000 baths daily. There is a tank car in case water is unobtainable at any stopping place. Soldiers can be given clean underclothes from the stores carried. There is also a car for drying and disinfecting outer garments and a restaurant car.

An Unusual Train Accident

The Pennsylvania Railroad, in one of its circulars giving "information for employees and the public," tells of an incident near Pittsburgh on the night of November 6 in which the derailment of a passenger train was prevented by means of the electro-pneumatic automatic signal system, a rupture of the main air-pipe, lying between the tracks, having set a signal at stop just in time to keep an eastbound passenger train from running into a car, which had been pushed over on to the eastbound track from a derailed westbound freight train. The passenger train had received a clear distant signal; but the home signal suddenly changed from the proceed to the stop position just before the train reached it. The engineman at once applied the brakes, in emergency, and stopped only about forty yards from the obstruction. The freight car had broken the air-pipe, which, of course, set at stop the signals dependent on the pressure in that pipe. The engineman of the passenger train was Edward F. McKenzie, known to readers of the *Railway Age Gazette* by his prize article on "Keeping a Good Lookout" printed a year ago.

Good Work Well Done

S. C. Long, general manager of the Pennsylvania Railroad, has sent to 800 employees of the company a personal letter commending their efficiency during the strike of trainmen on the Monongahela division in March, April and May of this year, when in spite of adverse conditions, the road was able to operate trains uninterruptedly. The letter says in part:

" . . . practically the entire force of road and yard freight trainmen on the Monongahela division, by their refusal to report for duty, when called, severed their relations with the company. A force of new men had to be organized and the inexperienced instructed; and food, sleeping quarters and police protection had to be provided. The regular division operating force had to be supplemented by temporarily transferring to the Monongahela division, officers and employees from other divisions. . . . The success with which the business was handled was most gratifying to the management.

"The general superintendent of the Western Pennsylvania division has called our attention to the commendable manner in which you participated in furthering this accomplishment; and it is a pleasure for me to join with the president and executive officers of our company in expressing to you sincere appreciation of this practical display by you of that sense of responsibility to the public which every railroad man must share, as well as of your fidelity to the interest of this company."

The Stamp Taxes

The war revenue act approved October 22 provides for the imposition of certain stamp taxes beginning December 1, and the Pennsylvania Railroad has issued a seven-page circular of instructions to agents concerning the administration of the law. A number of other roads have also issued circulars. On the Pennsylvania, east of Pittsburgh, about 50,000 bills of lading are issued daily. On each such receipt the shipper must affix a one-cent stamp. Agents are instructed not to deliver bills of lading until the stamp is affixed and cancelled; and the shipment must not be accepted or forwarded until the receipt is passed.

When carload freight is weighed before the receipt is filled out, a copy of the scale report is to be stamped, to take the place of a receipt. Where a car is switched from one track to another within the same station limit, and a charge is made for the service, the switching order is to be stamped. On goods that are carried in baggage cars on passenger trains, except personal effects properly classed as baggage, there must be a stamp for each shipment, provided the transportation charge is more than five cents; and if no bill of lading is given, the stamp is to be affixed to the goods.

Shippers are expected to buy their stamps at post offices, but the agents and conductors of the railroad will have supplies on hand, and may sell to shippers.

A notice has been issued by the Internal Revenue department, Washington, instructing freight conductors how to attend to the stamp tax requirements in cases where freight is received by them at stations where there is no agent.

New Haven Men Commended

The very heavy passenger movement carried out by the New York, New Haven & Hartford, on the occasion of the Yale-Harvard football game of November 21, when the road carried to and from New Haven in one day over 33,000 passengers, was noticed last week, page 1023. Chairman Howard Elliott, himself formerly a division superintendent, has sent to the operating and traffic vice-presidents a congratulatory letter summarizing the work done and expressing the pleasure of the directors at the results. After giving the facts he says:

"A well equipped, well organized, well managed, and well manned railroad should be able to perform this task satisfactorily. . . . But to do this work required most careful planning and detailed inspection by many officers; the greatest care by officers and thousands of employees; the most accurate and painstaking work by hundreds of men on engines and trains; on stations, in yards and round houses, and a nearly perfect condition of track, signals, and equipment. . . . That the large number of trains was handled substantially on the running time, speaks well for the condition of the property and for the team work of the officers and employees. There was one delay of about thirty minutes, due, it is believed, to unintentional interference with the air-brake valve by a passenger. There was only one casualty; a partly intoxicated man jumped from a moving train.

"On the New Haven [city] division of the Connecticut Trolleys there were, on Saturday, 180,140 fares rung up. This large number of passengers was transported without accident of any kind and with reasonable promptness over streets almost blocked by automobiles and pedestrians. . . .

"I am requested by the directors to express to you, to Mr. Bardo, general manager, to Mr. Smith, general passenger agent, . . . and to the men without whose careful work the day would have been a failure, the appreciative thanks of the directors, representing the owners of the property, and, to a certain extent, the public, for the good result obtained. . . . Personally, I wish to express my own hearty appreciation of the team work done and the esprit de corps shown. . . ."

Report on A. G. S. Derailment

The Interstate Commerce Commission has issued a report on the derailment on the Alabama Great Southern, near Livingston, Ala., September 18, in which 10 persons were killed and 40 injured; and the cause is found to be as given in the earlier report, which was printed in the *Railway Age Gazette*, October 30, page 794—malicious misplacement of a switch. Running at about 50 miles an hour, at three o'clock in the morning, northbound passenger train No. 2 encountered a facing point switch set for a siding, and the engine and the first four cars of the train were wrecked. The engineman saw the switch light change from clear to red only a short distance before reaching it. A freight train had used the switch only a short time previous, and there is no question that the switch was purposely misplaced, but the report says nothing on the question whether there is any clue to the perpetrator of the crime. The men on the freight train, waiting a few miles south of the switch, saw an automatic signal change two or three times from one position to the other, which changes were caused undoubtedly by movements of the switch. In the wooden passenger car in the train, three out of the seven passengers occupying the car were killed; and in a steel underframe car five out of fifteen were killed; and the inspector questions whether the steel underframe type, in a case like this, affords materially greater safety to passengers than does a wooden coach.

American Society of Mechanical Engineers

At the annual meeting of the American Society of Mechanical Engineers, held in New York, December 1-4, John A. Brashear, Pittsburgh, Pa., was elected president, and Henry Hess, of Philadelphia, Pa., George W. Dickie, New York Shipbuilding Company, Camden, N. J., and James E. Sague, Poughkeepsie, N. Y., were elected vice-presidents. Charles T. Main, Winchester, Mass., Spencer Miller, The Lidgerwood Manufacturing Company, New York, and Max Toltz, St. Paul, Minn., were elected managers. Morris L. Cooke, Philadelphia, was elected manager to fill an unexpired term, and William H. Wiley was elected treasurer.

MEETINGS AND CONVENTIONS

The following list gives the names of secretaries, dates of next or regular meetings, and places of meeting of those associations which will meet during the next three months. Hereafter the full list of meetings and conventions will be published only in the first issue of the Railway Age Gazette for each month.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—Chas. W. Hunt, 220 W. 57th St., New York. Regular meetings, 1st and 3d Wednesday in month, except June, July and August, 220 W. 57th St., New York.

AMERICAN SOCIETY OF ENGINEERING CONTRACTORS.—J. R. Wemlinger, 11 Broadway, New York. Regular meetings, 2d Thursday in month, at 2 P. M., 11 Broadway, New York.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—F. J. Angier, B. & O., Mt. Royal Sta., Baltimore, Md. Next convention, January 19-21, 1915, Chicago.

ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—G. P. Conard, 75 Church St., New York. Next meeting, December 8-9, Richmond, Va.

CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk, P. O. Box 7, St. Lambert (near Montreal), Que. Regular meetings, 2d Tuesday in month, except June, July and August, Windsor Hotel, Montreal Que.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 176 Mansfield St., Montreal, Que. Regular meetings, 1st Thursday in October, November, December, February, March and April. Annual meeting, January, Montreal.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 Lawler Ave., Chicago. Regular meetings, 2d Monday in month, except July and August, Lytton Bldg., Chicago.

CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York. Regular meetings, 2d Friday in January, May, September and November. Annual meetings, 2d Thursday in March, Hotel Statler, Buffalo, N. Y.

ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—Elmer K. Hiles, 2511 Oliver Bldg., Pittsburgh, Pa. Regular meetings, 1st and 3d Tuesday, Pittsburgh.

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—A. M. Hunter, 321 Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3d Thursday in month, Room 1856, Transportation Bldg., Chicago.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2d Tuesday in month, except June, July, August and September, Boston.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 95 Liberty St., New York. Regular meetings, 3d Friday in month, except June, July and August, 29 W. 39th St., New York.

NIAGARA FRONTIER CAR MEN'S ASSOCIATION.—E. Frankenberger, 623 Brisbane Bldg., Buffalo, N. Y. Meetings monthly.

PEORIA ASSOCIATION OF RAILROAD OFFICERS.—M. W. Rotchford, Union Station, Peoria, Ill. Regular meetings, 2d Thursday in month, Jefferson Hotel, Peoria.

RAILROAD CLUB OF KANSAS CITY.—C. Manlove, 1008 Walnut St., Kansas City, Mo. Regular meetings, 3d Friday in month, Kansas City.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 30 Church St., New York. Annual meeting, December 10, 1914, Waldorf-Astoria Hotel, New York.

RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Room 207, P. R. R. Sta., Pittsburgh, Pa. Regular meetings, 4th Friday in month, except June, July and August, Monongahela House, Pittsburgh.

RICHMOND RAILROAD CLUB.—F. O. Robinson, C. & O., Richmond, Va. Regular meetings, 2d Monday in month, except June, July and August.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August, St. Louis.

SALT LAKE TRANSPORTATION CLUB.—R. E. Rowland, Hotel Utah Bldg., Salt Lake City, Utah. Regular meetings, 1st Saturday of each month, Salt Lake City.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—E. W. Sandwich, A. & W. P. R. R., Atlanta, Ga. Next regular meeting, January 21, 1915, Atlanta, Ga.

SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grant Bldg., Atlanta, Ga. Regular meetings, 3d Thursday, January, March, May, July, September, November, 10 A. M., Candler Bldg., Atlanta.

TOLEDO TRANSPORTATION CLUB.—Harry S. Fox, Toledo, Ohio. Regular meetings, 1st Saturday in month, Boody House, Toledo.

TRAFFIC CLUB OF CHICAGO.—W. H. Wharton, La Salle Hotel, Chicago.

TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 291 Broadway, New York. Regular meetings last Tuesday in month, except June, July and August, Waldorf-Astoria, New York.

TRAFFIC CLUB OF PITTSBURGH.—D. L. Wells, Erie R. R., Pittsburgh, Pa. Meetings bimonthly, Pittsburgh. Annual meeting, 2d Monday in June.

TRAFFIC CLUB OF ST. LOUIS.—A. F. Versen, Mercantile Library Bldg., St. Louis, Mo. Annual meeting in November. Noonday meetings October to May.

WESTERN CANADA RAILWAY CLUB.—W. H. Rosevear, P. O. Box 1707, Winnipeg, Man. Regular meetings, 2d Monday, except June, July and August, Winnipeg.

WESTERN RAILWAY CLUB.—J. W. Taylor, 1112 Karpen Bldg., Chicago. Regular meetings, 3d Tuesday in month, except June, July and August, Karpen Bldg., Chicago.

WESTERN SOCIETY OF ENGINEERS.—J. H. Warder, 1735 Monadnock Block, Chicago. Regular meetings, 1st Monday in month, except January, July and August, Chicago. Extra meetings, except in July and August, generally on other Monday evenings.

REVENUES AND EXPENSES OF RAILWAYS

THREE MONTHS OF FISCAL YEAR ENDING JUNE 30, 1915—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Net operating revenue (or deficit).	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total. inc. misc.	Maintenance Way and structures.	Maintenance Of equipment.	Traffic.	Transportation.	Miscellaneous.	General.	Total.				
Spokane, Portland & Seattle	556	784,605	498,826	1,412,278	154,223	105,054	26,483	284,456	11,678	40,218	622,114	790,165	160,200	629,857	48,649
Tennessee Central	294	281,998	118,125	424,829	92,018	52,746	16,606	156,805	.....	20,054	338,229	86,600	13,405	73,154	—48,185
Terminal R. R. Ass'n of St. Louis	35	.....	538	697,864	51,223	30,962	2,678	228,778	.....	16,364	330,005	367,859	83,510	284,350	—113,596
Texas & New Orleans	469	647,805	307,220	1,056,586	191,335	270,919	22,333	455,104	44,335	31,639	1,015,244	41,343	47,379	—6,766	—105,229
Texas & Pacific	1,887	2,838,111	1,165,249	4,356,049	505,956	751,355	110,340	1,787,708	44,956	115,366	3,313,887	1,042,161	206,100	835,369	63,673
Toledo & Ohio Central	446	1,201,713	187,440	1,479,232	182,739	239,698	21,103	498,152	5,477	30,236	977,405	501,827	64,060	437,314	36,330
Toledo, Peoria & Western	248	193,790	128,804	340,065	53,800	77,030	6,844	133,259	.....	10,796	281,730	58,335	18,300	40,035	20,794
Toledo, St. Louis & Western	451	1,006,481	107,977	1,196,742	144,294	184,344	47,237	424,184	.....	23,810	824,069	372,673	63,000	309,673	—74,593
Trinity & Brazos Valley	315	183,493	75,123	280,258	59,699	21,332	12,185	135,966	.....	25,240	254,422	25,836	14,700	11,103	35,628
Ulster & Delaware	129	150,535	175,116	375,247	54,761	39,286	6,584	153,155	149	9,229	263,165	112,082	9,900	102,182	—21,735
Union Pacific	3,615	10,603,905	2,874,247	14,871,407	2,007,547	1,857,923	265,629	3,368,719	228,190	352,429	8,074,939	6,796,468	549,357	6,245,925	260,055
Union R. R. of Baltimore	9	351,490	70,191	426,956	40,080	.....	.....	13,794	.....	6,871	60,746	366,211	18,591	347,620	—17,027
Union R. R. of Pennsylvania	31	.....	.....	1,205,881	149,530	310,788	300	423,709	.....	8,869	893,194	312,687	12,159	300,528	—135,768
Vandalia	910	2,009,803	677,430	2,992,073	440,536	562,538	66,443	1,075,471	36,698	63,213	2,244,899	747,174	96,873	650,301	—67,571
Vicksburg, Shreveport & Pacific	171	209,991	143,172	391,674	66,678	87,048	10,388	143,080	7,748	15,110	330,052	61,622	21,600	40,022	—33,466
Virginia & Southwestern	240	450,051	49,916	515,649	74,966	113,716	7,446	141,523	.....	11,385	349,035	166,614	18,750	147,864	1,637
Virginian	503	1,366,973	122,478	1,582,946	199,179	271,867	17,029	348,418	31,476	29,911	881,339	701,608	67,500	634,098	—38,745
Wabash	2,518	5,463,122	1,944,558	8,089,816	969,022	1,333,630	261,691	2,937,365	51,507	183,162	5,729,998	2,359,818	250,695	2,108,700	13,379
Washington Southern	36	115,938	111,526	307,050	40,794	48,190	4,028	123,107	1,544	8,968	226,631	80,418	9,960	70,454	1,575
West Jersey & Seashore	356	511,491	1,803,947	2,506,281	302,622	285,227	36,839	804,407	9,548	39,409	1,478,054	1,028,227	82,078	946,063	95,397
Western Maryland	661	1,777,063	325,230	2,200,248	315,908	355,774	63,774	804,311	5,876	56,888	1,598,226	602,022	73,500	528,522	109,919
Western Pacific	943	1,233,761	381,329	1,712,031	418,233	196,579	74,164	507,063	38,704	65,924	1,300,667	411,364	90,053	320,528	—158,055
Western Ry. of Alabama	133	168,442	122,248	319,986	60,558	80,751	17,252	96,991	4,396	13,370	273,318	46,668	15,832	30,761	—28,329
Wheeling & Lake Erie	459	1,298,316	184,747	1,617,362	210,321	297,738	27,455	550,828	4,557	47,417	1,138,315	479,047	97,643	381,404	—200,586
Yazoo & Mississippi Valley	1,372	1,839,926	647,565	2,656,850	470,032	457,284	51,501	1,038,971	2,482	68,049	2,084,729	572,121	150,000	421,862	35,429

Traffic News

The Chicago & North Western and the Chicago, Milwaukee & St. Paul have recently advanced the charge for table d'hote meals in dining cars between Chicago and St. Paul from $1 to $1.25.

A special train composed of 34 carloads of tea was run over the Chicago & North Western last week en route from Los Angeles to the East. The run from Omaha, Neb., to Peoria, Ill., 464 miles, was made in about 24 hours. The tea weighed 1,221,477 lb. and was valued at approximately $300,000.

A meeting of the Official Classification Committee will be held in New York on December 8, for consideration of many subjects enumerated in docket No. 21, including recommendations of the Committee on Uniform Classification. A preliminary hearing was held in the rooms of the Central Freight Association in Chicago on December 3.

Quarantines against foot-and-mouth disease have been relaxed but little. In some states, including New Hampshire, new quarantines have been ordered because of the discovery of the disease in new places. The state of Delaware has issued a quarantine order against the bringing of dogs into the state, in baggage cars or by express.

The agricultural instruction car of the University of Tennessee is making a tour of the eastern part of that state which is planned to extend over four months. The car carries prize horses, sheep and other animals. It is in charge of Professor C. A. Keffer. Each county, to have the advantage of the presence of the car within its borders, must make an appropriation of $100.

At the annual meeting and election of officers of the Traffic Club of New York on November 24, W. C. Hope, general passenger agent of the Central of New Jersey, was elected president. Other officers elected were: Vice-presidents, T. A. Gantt, W. C. Connor, Jr., T. T. Harkrader, R. S. Stubbs, W. N. Agnew; treasurer, Frank C. Earle; secretary, C. A. Swope; governors, W. C. Bates, W. S. Cowie, W. A. Schumacher.

More than a million tons of freight have been carried through the Panama Canal during the first three months of its operation. Thus far the eastbound traffic has been in excess of westbound traffic, westbound being 621,080 tons as compared with 457,991 tons eastbound. More than 95 per cent of this traffic was on the four great routes which developed soon after the canal was opened; the United States coastwise trade, the traffic between the Pacific Coast of the United States and Europe, the trade of the west coast of South America with the Atlantic seaboard of the United States and with Europe and traffic between the Atlantic coast of the United States and the Far East.

Beginning on November 29 the Chicago, Burlington & Quincy's Denver Limited train will leave Chicago at 10:05 a. m., instead of in the evening, and will arrive at Omaha at 12:01 a. m. and Denver at 2:30 p. m. the next day, taking the place of the Colorado Limited, which formerly left at 9:45 a. m., and which will not be run during the winter months. On the same date the Chicago & North Western will put on a new morning train to Omaha, Denver, Colorado Springs and Pueblo, leaving Chicago at 10:30 and arriving at Denver the following afternoon at 2:45. The train now leaving Chicago at 6:05 p. m., known as the Denver Special, will be called the Omaha-Chicago Special, and will be run between Chicago, Omaha and Sioux City, being discontinued beyond. Corresponding changes will be made in the eastbound service.

The directors of the Chamber of Commerce of Norfolk, Va., have petitioned the Interstate Commerce Commission to permit the railroads terminating in that city to continue their ownership of the steamboat lines now operated or controlled by them running to Baltimore, New York and other northern ports. There is a feeling in Norfolk that if the railroads should be compelled to divest themselves of ownership in the steamer lines the control of the vessels would go to other cities, and would work against the interest of Norfolk. The petition asked for the continuance of the present ownership "to such reasonable time as may be necessary for a demonstration of the efficiency of the act" which allows this continuance of railroad ownership. The Interstate Commerce Commission, when it gives such permission, must assume authority to regulate rates over the water lines.

The Department of Agriculture has issued a statement to the effect that there is no quarantine against shipment of dressed poultry except from actually infected farms. An entirely erroneous impression has gained currency and has prevented the shipment of dressed poultry, damaging seriously the turkey industry. In New York, Boston and Philadelphia turkeys were somewhat scarce at Thanksgiving and prices ruled high. The Department of Agriculture, wishing to save farmers in the important turkey growing states of Tennessee, Kentucky, Missouri, Texas, Indiana and Illinois, reiterates its previous announcement that there is no federal quarantine or restriction on shipping dressed turkeys or other poultry from uninfected farms in quarantine states, and absolutely no federal restriction as to shipment of dressed poultry into quarantined states. There is at present no state quarantine in New York against the shipment of dressed poultry into that state. Kentucky has quarantined against the shipment of dressed poultry from the infected counties in that state, but this is purely a state measure.

Increased Fares in New England

The Boston & Maine, the Boston & Albany and the New York, New Haven & Hartford have announced new passenger tariffs, to go into effect January 1. In all of these tariffs the regular rate for single tickets is based on 2½ cents a mile; and in substantially all cases, except a few on the Boston & Maine, this will mean an advance. The B. & M. has some fares based on a rate of three cents a mile, and some on 2¾ cents. In the suburban district around Boston—distances less than 15 miles—there is no advance.

On most of the important lines of these companies the local rate at present is 2¼ cents; but this has now been made the rate for thousand-mile tickets. Under the new tariffs the difference between single tickets and mileage tickets will be 2½ mills a mile, as formerly.

Advances in Freight Rates Suspended

The Interstate Commerce Commission this week suspended for four months practically all of the new freight tariffs, making advances in rates, which have been filed recently by the roads in Central Freight Association and Eastern Territory, and also in the territory west of Chicago. The commodities affected by these suspensions are very numerous, coal, livestock, fresh meats, hay, grain, cotton goods, etc., and changes in elevator charges and allowances and other local charges are included. The roads had proposed to increase grain rates about 1 cent per 100 lb., from St. Paul, St. Louis, Chicago and other points to Gulf ports.

A larger number of other freight tariffs, which are of interest in more limited territory, have also been suspended.

The proposed increases in the rates on livestock and meats from Chicago eastward were complained of by the American Meat Packers' Association. The new tariffs showed an advance of five cents—from 45 cents to 50 cents, per 100 lb., in the rates on fresh meats from Chicago to New York; on cattle from Chicago to New York five cents—28 to 33; on hogs, sheep, etc., in double deck cars, from 28 to 33; in single deck cars, from 35 to 38. Other kinds of goods in these same general classes were advanced in proportion.

RAILWAY CONSTRUCTION IN URUGUAY.—Application has been made to the Uruguayan ministry for public works for authority to make a survey for a railway starting from Pan de Azucar, crossing the valley of that name and proceeding in the direction of Minas. It is stated that this line would permit the exploitation of a number of marble and mine stone quarries in the district, as well as rich slate and copper deposits. The projected line will connect with another ten miles long connecting Pan de Azucar with the port of Piriapolis.

Commission and Court News

INTERSTATE COMMERCE COMMISSION

A hearing was held at Chicago on November 30 before Examiners Carmalt, Sanford and Hewett, on allowances paid by trunk line railroads to industrial lines, of which cancellations have been filed by the railroads and suspended by the commission. The first case heard was that of the Algoma Central & Hudson Bay, which is connected with the Algoma Steel Company, of Sault Ste. Marie, Ont. Next was taken up the case of the Chicago & Calumet River, connected with the Western Steel Car & Foundry Company, and testimony was presented as to a number of other industrial roads, most of them in the Chicago district.

The Corporation Commission of Oklahoma, the Oklahoma Grain Dealers' Association and the Oklahoma Millers' Association have filed with the Interstate Commerce Commission a joint complaint asking that the Atchison, Topeka & Santa Fe and the Gulf, Colorado & Santa Fe be ordered to establish through routes and joint rates for the transportation of grain and grain products from Oklahoma points to Louisiana points for export, and to re-establish joint rates to Texas ports. According to the complaint Galveston, Tex., and Texas City, and points in their immediate vicinity are the only ports on the gulf to which through routes have been maintained by the Santa Fe lines, and, since October 31, these roads have maintained an embargo on grain shipments for export to these ports, making it necessary for shippers to pay higher combinations of local rates on shipments to Louisiana points.

Rates on Blackstrap Molasses to Kansas City and Other Points

Opinion by Commissioner McChord:

The commission finds that the carriers are justified in restoring to the regular molasses rate basis, the present rate on blackstrap molasses in carloads from points in Louisiana to Kansas City, St. Joseph and other points in Missouri, Nebraska, Kansas and Iowa. (32 I. C. C., 176.)

Penalty Charges on Sulphuric Acid

International Agricultural Corporation v. Atlanta & West Point et al. Opinion by Commissioner McChord:

The commission finds that the tariffs of the defendants allowing only 24 hours' free time on sulphuric acid and doubling the charge after 48 hours are unreasonable, and believes that a reasonable rule would be to allow 48 hours' free time after the first 7 a. m., following notice to the consignee of arrival, and that the charge should not exceed $2 per day after such free time. Reparation is awarded on this basis. (32 I. C. C., 199.)

Rates from Houston, Tex., to Points in Arkansas

Chamber of Commerce of Houston, Tex., v. Houston East & West Texas et al. Opinion by Commissioner Clements:

The commission finds that the present adjustment of rates from Houston, Tex., St. Louis and Kansas City, Mo., and New Orleans, La., to stations in Arkansas, is not prejudicial to the first-named point or preferential to the last three points. Complaint dismissed. (32 I. C. C. 203.)

Class Rates from Terre Haute, Ind.

In re Class Rates from Terre Haute, Ind., and Other Points to Kansas City, Mo., and Other Destinations. Opinion by Commissioner Hall:

The commission finds that the carriers are justified in cancelling the joint through class rates applicable on traffic from Terre Haute, Ind., and other points to points on the Missouri River. The proposed cancellations will leave in effect combinations of intermediate rates, but it is held that these combinations do not result in unreasonable rates. (32 I. C. C., 206.)

STATE COMMISSIONS

The Texas Railroad Commission has again changed the date from January 14 to January 11, 1915, for the proposed hearing on the application of the Texas railroads for a general advance in freight rates.

Investigators for the Illinois Public Utilities Commission have reported to the commission that sufficient protection against accidents and inconveniences to patrons during rush hours are not provided at the Union passenger station in Chicago. As a result of the report the commission has notified officers of the roads that steps must be taken at once to improve the situation.

It is estimated that the cost of the newly created Public Utilities commission of the State of Maine will be $58,000 a year. Among the principal items in the budget are: Salaries of commissioners, $14,000; salaries of clerk and assistant clerk, $5,000; salary, help and office expenses of the engineer in charge of the water storage department, $5,000; chief of the railroad department, $2,500; chief of the department of rates and schedules, $1,500; office stenographers, $2,000; traveling expenses of commissioners and employees, $4,000; office expenses and equipment, $3,500; witness fees and expenses for hearings, $3,000; investigations, inspections, incidental matters involving informal complaints and actions on the initiative of the commission, $5,000; expert accountant and auditor, $2,500; printing annual report, $3,000. An additional estimate of $5,000 is presented for the year 1915 for printing blanks, rules, orders and instructions for uniform bookkeeping, returns, rates, schedules, etc., and $5,000 for the year 1916 for securing data and beginning the work of the physical valuation of the utilities in the state.

PERSONNEL OF COMMISSIONS

E. J. Bean, general counsel of the Missouri Public Service Commission, has been appointed a member of the commission, succeeding William F. Woerner, resigned. William G. Busby, of Carrollton, has been appointed general counsel of the commission to succeed Mr. Bean.

Richard Sachse has been appointed chief engineer of the California Railroad Commission, with office at San Francisco. He entered the service of the commission in 1911 as assistant engineer; was promoted to the position of principal assistant engineer in 1913; and was made acting chief engineer about a year ago. Prior to his service with the commission he had been with the Western Pacific and the Southern Pacific railroads and the United States Reclamation Service.

COURT NEWS

John W. Keogh, a manufacturer of excelsior, has filed suit in the United States district court at Chicago against eight railroads entering Chicago for $125,000 damages for alleged depreciation in the value of his plant at St. Paul, caused by an advance in freight rates.

In the United States District Court at Newark, N. J., November 27, the Central Railroad of New Jersey was indicted for paying illegal rebates on freight. The charges are based on allowances made to the Lehigh Coal & Navigation Company in connection with terminal operations.

The New Orleans, Texas & Mexico has petitioned the federal court at New Orleans to enjoin the Interstate Commerce Commission from enforcing its second supplemental order in the tap line cases, charging that the order does not permit tap lines to earn a reasonable return on the investment, and asking that the order be nullified also as it affects the Louisiana & Pacific. The court has set the petition for a hearing on December 10.

The Ohio Valley Tie Company has recovered $56,971 from the Louisville & Nashville Railroad in a suit claiming damages because the railroad refused accommodations for shipments of ties, and made an unreasonable advance in the rates for transportation. After recovering a considerable sum in a former suit for overcharges caused by an unexpected increase in the rates the tie company secured a mandatory injunction requiring the

railroad to give it suitable accommodations. Then, it is alleged, the road failed to furnish cars; and cars offered by the Pennsylvania and the Cleveland, Cincinnati, Chicago & St. Louis, customers of the tie company, were refused. It was also charged that the Louisville & Nashville would accept carloads of ties to be delivered on team tracks at Louisville, but would not accept the same for delivery to connecting roads.

Judge Sullivan at Chicago, on November 28, rendered a decision setting aside the award made by E. C. Field as arbitrator of the claims of the Chicago & Western Indiana against John C. Fetzer, a real estate broker, Benjamin Thomas, former president of the road, and C. R. Kappes, former real estate agent of the road, which ordered the restoration by the three men of $525,000 alleged to have been misappropriated from the company in real estate transactions for the road. After the railroad had filed a civil suit against the three men an agreement was reached to settle the case out of court by arbitration, and Thomas and Kappes paid in approximately $70,000 as their share of the award. Fetzer, however, filed suit to have the award set aside on the ground that this money was charged to real estate transactions and then turned back by him to officers of the road to be expended in bribing the legislature of Illinois and the city council of Cook county. Judge Sullivan set the award aside on the ground that the arbitrator had violated some of the provisions of the agreement under which the case was left to arbitration.

Oklahoma Separate-Car Law

The Supreme Court of the United States on Monday last delivered an opinion that the Oklahoma "Jim Crow" law proviso permitting railroads to furnish sleeping, dining and chair car accommodations only to the white race—the "luxury" clause—was unconstitutional, but because of imperfections in the petition on which the case reached the courts, no decree to that effect was entered.

Five negroes, contending that the entire law was unconstitutional, sought an injunction to restrain five railroads in Oklahoma from enforcing it. The Oklahoma Federal Court dismissed the petition, holding the law constitutional. The court affirmed the dismissal because the negroes had not shown that they had applied to the railroads for accommodation under the law or that the railroads had notified them that accommodations would be refused to them.

The opinion, by Justice Hughes, stated, however, that the court could not agree with the lower court that the proviso as to sleeping, dining and chair cars was constitutional. A minority, consisting of Chief Justice White and Justices Holmes, Lamar and McReynolds, concurred merely in the order of affirmance, but expressed no views on the constitutional question.

In the opinion by the majority, Justice Hughes said that previous decisions that laws for separate coaches for the two races were constitutional were not questioned, adding that "substantial equality of treatment of persons traveling under like conditions cannot be denied."

Justice Hughes set forth the reasons for the opinion that the lower court was wrong in holding the proviso constitutional. "The reasoning is," said he, "that there may not be enough persons of African descent seeking these accommodations to warrant the outlay in providing them. This argument with respect to the value of the traffic seems to be without merit. It makes the constitutional right depend upon the number of persons who may be discriminated against, whereas the essence of the constitutional right is that it is a personal one. Whether or not special facilities shall be provided may doubtless be conditioned upon there being a reasonable demand therefor; but if facilities are provided, substantial equality of treatment of persons traveling under like conditions cannot be denied. It is the individual who is entitled to the equal protection of the laws, and if he is denied by a common carrier, acting in the matter under the authority of the state, facilities or conveniences in the course of his journey under substantially the same conditions as furnished to another traveler, he may properly complain that his constitutional privileges have been invaded."

The court gave no intimation as to whether in a proper case it would merely hold the "luxury" car section unconstitutional, or whether it would decide that this section being unconstitutional, the entire law must fall. The five railroads in the case had asked the court to hold the entire law unconstitutional if the "luxury" proviso was annulled.

Railway Officers

Executive, Financial, Legal and Accounting

F. C. Elliott, general counsel of the White Pass & Yukon at Chicago, has been elected president, with office at Chicago, succeeding O. L. Dickeson, resigned, effective January 1.

A. S. Dutton has been appointed auditor of freight accounts, and J. M. Eedson has been appointed freight claim agent of the Toronto, Hamilton & Buffalo, with offices at Detroit, Mich., succeeding Thomas Eedson, deceased.

J. E. Dalrymple, vice-president of the Grand Trunk, the Grand Trunk Pacific and the Central Vermont at Montreal, Que., has been appointed also vice-president in charge of traffic of the Montreal & Southern Counties.

Lyman Delano, assistant to president and assistant secretary of the Atlantic Coast Line at Wilmington, N. C., has been elected third vice-president, in charge of operation. He was born on January 16, 1883, at Newburgh, N. Y., and was educated at Harvard College. On April 1, 1909, he began railway work in the office of the chief roadway accountant of the Atlantic Coast Line. He subsequently served as assistant to chief engineer, and then as assistant to the general superintendent of transportation. On January 1, 1912, he was appointed assistant to president, and now becomes third vice-president in charge of operation of the same road. Mr. Delano's entire service has been with the Atlantic Coast Line.

Operating

J. J. Blair, trainmaster of the Northern Pacific at Spokane, Wash., has been assigned to other duties, the office having been discontinued.

E. T. Sudduth has been appointed general superintendent of the Liberty-White, with office at McComb, Miss., succeeding J. B. Paul, resigned.

R. C. Hobbs, traffic manager of the Kansas City & Memphis, has been appointed general manager, with headquarters at Rogers, Ark., succeeding O. C. Lisman.

W. W. Varney has been appointed trainmaster of the Zanesville division of the Pennsylvania Lines at Zanesville, Ohio, in place of V. B. McCarty, assigned to other duties.

Charles Hurdleston, formerly division superintendent of the Missouri, Kansas & Texas, has been appointed manager of the Texas State Railroad, with headquarters at Rusk, Tex.

G. S. Waid, assistant general manager of the Sunset-Central Lines at Houston, Tex., has been appointed general manager, with headquarters at Houston, succeeding W. G. Van Vleck, deceased.

W. E. Smith has been appointed superintendent of the Henderson and St. Louis divisions of the Louisville & Nashville, with office at Evansville, Ind., succeeding Jno. W. Logsdon, assigned to other duties.

S. L. Racey, trainmaster of the Denver & Rio Grande at Salt Lake City, Utah, has been appointed assistant superintendent of the First division, with headquarters at Pueblo, Colo., succeeding E. E. Gray, transferred.

D. M. Stevens, fuel inspector of the Baltimore & Ohio, has been appointed trainmaster at Garrett, Ind. J. K. Yohe, Jr., has been appointed assistant trainmaster at Connellsville, Pa. J. J. Smith, assistant trainmaster of the New Castle division, has been transferred to the Chicago division at Chicago Junction, Ohio, in a similar capacity. C. E. McDougal, assistant trainmaster of the Pittsburgh division, has been transferred to the New Castle division in a similar capacity, with office at Chicago Junction. C. W. VanHorn, trainmaster of the eastern district, Chicago division, has been appointed superintendent of terminals at Chicago Junction. J. S. Gilmore, assistant trainmaster of the Chicago division, has been transferred to the Connellsville division.

Traffic

The office of C. D. Brown, commercial agent of the Southern Railway, has been removed from Greenwood, S. C., to Abbeville.

William Gourlay, assistant to vice-president of the American Express Company, at Chicago, has been appointed general traffic agent.

F. G. Hamblin has been appointed traffic manager of the Kansas City & Memphis, with office at Rogers, Ark., succeeding R. C. Hobbs, promoted.

Charles S. Lee, whose appointment as passenger traffic manager of the Lehigh Valley, with headquarters at New York, has already been announced in these columns, was born at Washington, D. C., and began railway work in 1871, with the Lake Shore & Tuscarawas Valley, now a part of the Baltimore & Ohio at Cleveland, Ohio. From August, 1879, to July, 1883, he was rate and advertising clerk in the passenger department of the Cleveland, Columbus, Cincinnati & Indianapolis, now a part of the Cleveland, Cincinnati, Chicago & St. Louis, and then became secretary of the American Railway Publishing Company at New York. In February, 1884, he was appointed chief clerk in the general passenger department of the Denver & Rio Grande, at Denver, Colo. From May, 1887, to September, 1893, he was general passenger agent of the Colorado Midland, part of which time he had charge of both passenger and freight departments. On September 1, 1893, he entered the service of the Lehigh Valley as general passenger agent at New York, which position he held at the time of his recent appointment as passenger traffic manager of the same road as above noted.

C. S. Lee

George W. Hay, who has been appointed general passenger agent of the Lehigh Valley, with headquarters at New York, as has already been announced in these columns, was born at Woodstock, Ontario, in 1869, and began railway work, in 1888, as a billing clerk on the Grand Trunk at Detroit, Mich. He subsequently entered train service as a baggage man, and was steadily promoted, until his appointment in 1906 as assistant general baggage agent of the entire system of the Grand Trunk. In 1907 he entered the service of the Lehigh Valley as general baggage agent, with headquarters at South Bethlehem, Pa., and was also assigned duties as a district passenger agent for that section of the Lehigh Valley's territory, which position he held at the time of his recent appointment as general passenger agent of the same road, as above noted.

G. W. Hay

A. H. Proudfoot, assistant general freight and passenger agent of the Liberty-White at McComb, Miss., has been appointed general freight and passenger agent, and his former position has been abolished.

The duties of C. A. Searle, general baggage agent of the Rock Island Lines, with headquarters at Chicago, are extended to include supervision of express traffic.

Eugene J. Henry, general western freight agent of the Lehigh Valley at Chicago, has been appointed western traffic manager, a new position, with headquarters at Chicago. A. B. Hill, general agent of the passenger department, at Chicago, has been appointed an assistant general passenger agent, with headquarters at Philadelphia, Pa., and D. F. Lindsley, city passenger agent at Chicago, has been appointed western passenger agent, with headquarters at Chicago.

Paul S. Millspaugh, whose appointment as assistant general passenger agent of the Lehigh Valley, with headquarters at Buffalo, N. Y., has already been announced in these columns, was born at Waverly, N. Y., in 1874, and began railway work as a joint representative of the Lehigh Valley and the Erie at Waverly, as accountant and auditor. In 1892, when the Lehigh Valley was opened through to Buffalo, he was appointed an assistant in the ticket office at Ithaca, and then was consecutively city ticket agent, traveling passenger agent and district passenger agent until about a year ago, when he was appointed general agent of the passenger department, with headquarters at Ithaca, which position he held at the time of his recent appointment as assistant general passenger agent of the same road, with headquarters at Buffalo, as above noted.

P. S. Millspaugh

Engineering and Rolling Stock

Charles B. Teller has been appointed roadmaster of the Chicago, Rock Island & Gulf at Ft. Worth, Tex., to succeed B. F. Harrison, resigned.

E. Wanamaker has been appointed electrical engineer of the Rock Island Lines, with headquarters at Chicago, succeeding F. J. Glover, resigned, effective December 1.

E. J. Langhurst, assistant road foreman of engines of the New Castle division of the Baltimore & Ohio, has been appointed road foreman of engines at Parkersburg, W. Va.

F. K. Moses, foreman at the Garrett (Ind.) shops of the Baltimore & Ohio, has been appointed master mechanic of the Baltimore & Ohio Chicago Terminal shops, at East Chicago, succeeding J. W. Fogg.

H. C. Oviatt, until recently superintendent of the Old Colony division of the New York, New Haven & Hartford at Taunton, Mass., has been appointed assistant mechanical superintendent in charge of a new bureau just established to be known as the bureau of fuel economy, with office at New Haven, Conn.

W. Gillespie, master car builder of the Central Vermont at St. Albans, Vt., has been appointed mechanical superintendent in charge of motive power and car departments, and T. A. Summerskill, superintendent of motive power, and J. E. Fitzsimons, master mechanic, have been assigned to other duties. The offices of master car builder, superintendent of motive power and master mechanic are abolished.

OBITUARY

Henry Fonde, general agent of the Southern Railway at Knoxville, Tenn., died at his home in that city on November 28.

Henry D. Mirick, who was general freight agent of the Missouri, Kansas & Texas in 1871, died in Washington, D. C., November 26, aged 79 years.

J. H. Waters, president and general manager of the Florence & Cripple Creek, died in Colorado Springs, Colo., on November 27 from injuries received in a collision between a railroad motor car and a locomotive at Cripple Creek on November 25.

C. C. Mallard, superintendent of the Arizona Eastern, with headquarters at Globe, Ariz., died at New Orleans, La., on November 24, aged 54 years. He had been in railway service since 1879, when he commenced as rodman on Morgan's Louisiana & Texas Railroad. Subsequently he was assistant engineer on the Sabine & East Texas and the Houston & Texas Central; engineer for the contractors on the Chicago, Texas & Mexican; roadmaster and assistant engineer of Morgan's Louisiana & Texas, and assistant superintendent bridges and buildings of the Atlantic system of the Southern Pacific, until July, 1898. He was then until August, 1905, successively division engineer of the latter company, and assistant superintendent of the Louisiana lines. From September, 1905, to January, 1906, he was assistant engineer and roadmaster of the Gila Valley, Globe & Northern, and since the latter date Mr. Mallard had been superintendent of that road and its successor, the Arizona Eastern.

Owen J. Travis, formerly superintendent of bridges of the Colorado & Southern and the Ft. Worth & Denver City, died at Everett, Wash., on November 14, aged 66 years. Mr. Travis entered the service of the Keystone Bridge Company in 1868 as bridge builder at Kansas City, Mo., and from 1877 to 1881, was superintendent of traffic of the St. Louis Bridge Company. He was then for three years superintendent of bridges and buildings of the Middle division of the Wabash, St. Louis & Pacific, and from 1884 to 1889, was general foreman of the Chicago and St. Louis division of that road. The succeeding four years he was with the Iowa Central as superintendent of bridges and buildings, going to the Elgin, Joliet & Eastern in 1893 in a similar capacity. He was superintendent of bridges of the Illinois Central from 1897 to 1903, when he became superintendent of bridges and buildings of the Colorado & Southern and the Ft. Worth & Denver City at Fort Worth, Tex. Mr. Travis held the latter position until his retirement from active railway service in 1910.

A. C. Bird, formerly vice-president in charge of traffic of the Gould Lines, died on November 28, at Pasadena, Cal. Mr. Bird was born at Pittsfield, Ill., on March 4, 1843, and began railway work in 1865 with the St. Louis, Alton & Terre Haute. He held various minor positions until 1872, when he went to the St. Louis, Kansas City & Northern as chief clerk in the general freight office. In July, 1874, he was appointed general freight agent of that road, and in November, 1879, he accepted a similar position with the Wabash, St. Louis & Pacific, being promoted to superintendent of freight traffic in January, 1880. He resigned the latter position on January 1, 1883, to become general freight agent of the Chicago, Milwaukee & St. Paul, of which road he was freight traffic manager from February, 1889, to December, 1895; general traffic manager the following four years, and third vice-president from December, 1899, to March, 1903. Mr. Bird then went to the Gould Lines as vice-president in charge of traffic, with headquarters at Chicago, resigning in November, 1907, since which time he had not been engaged in active railway work.

AUSTRALIAN RAILWAY WAR COUNCIL.—Section 64 of the Australian local defence act of 1903 provides that "The government may, in time of war, authorize any officer to assume control of any railway for transport for naval or military purposes." Following Lord Kitchener's visit to Australia in 1910, he recommended the formation of a war railway council, similar to that in the United Kingdom. In conformance with that advice a council was formed, which met for the first time in February, 1911. The council is similar to the British council, the commissioners of each state, together with the heads of a few branches, constituting its members.

Equipment and Supplies

LOCOMOTIVE BUILDING

THE CALIFORNIA WESTERN RAILROAD & NAVIGATION COMPANY is in the market for one locomotive.

THE MAINE CENTRAL, as reported in the *Railway Age Gazette* of last week, has ordered 7 Mikado type locomotives from the American Locomotive Company. These locomotives will have 26½ by 30 in. cylinders and a total weight in working order of 275,000 lb. They will be equipped with superheaters and will be used in freight service.

CAR BUILDING

THE UNION TANK LINE is in the market for 500 6,500-gal. tank cars.

THE WESTMORELAND COAL COMPANY is in the market for 100 50-ton gondola cars.

THE ILLINOIS SOUTHERN has ordered 300 box cars from the Haskell & Barker Car Company.

IRON AND STEEL

THE MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE has ordered plate girder spans amounting to 107 tons from the Chicago Bridge & Iron Works.

THE ATCHISON, TOPEKA & SANTA FE has ordered 63,450 tons of 90-lb. rail from the Colorado Fuel & Iron Company. Of this allotment 23,000 tons are for the eastern lines, 25,900 tons for the western lines, 7,600 tons for the coast lines and 6,950 tons for the gulf lines.

SIGNALING

The Nashville, Chattanooga & St. Louis is putting up a telephone line from Nashville to Chattanooga, and telephones will be used for train despatching throughout this division. The contracts for the poles, wires, instruments, etc., will amount to $60,000, or about $400 a mile.

The Federal Signal Company has taken the contract for the installation of a mechanical interlocking at Tivoli, N. Y., on the Hudson Division of the New York Central & Hudson River. This consists of a 56 lever style "A" machine operating 17 signals, 8 switches, 1 derail and 9 facing point locks. Twenty-one spare levers are provided for future extensions to complete a standard four track interlocking layout on the completion of the track work.

The signaling on the Centre street loop of the Brooklyn Rapid Transit System, New York City, is being installed by the Federal Signal Company, and the first section was placed in service on Sunday, November 15. During the rush hours, morning and evening, trains pass over this section less than one minute apart. Since installation, however, there has not been a failure or any interruption of traffic due to the signal system. This line, extending underground from the Brooklyn bridge to the Williamsburgh bridge, Manhattan, about one mile, is a part of the extensions now being added to New York's subway system.

TRANS-SIBERIAN MAIL ROUTE AGAIN OPEN.—The trans-Siberian mail route from the Philippines to the United States and most parts of Europe, which was closed at the outbreak of the war in Europe, has been reopened, the first mail arriving in Manila on September 22. The postage now charged is 8 cents for each 20 grams or fraction thereof for letters and 3 cents for single post cards. Westbound mail will go direct to Petrograd and be forwarded thence to Russia, Sweden, Norway, Denmark, Great Britain, the United States, Belgium, France, Italy, Spain and Portugal, leaving Russia via Sweden and Norway.

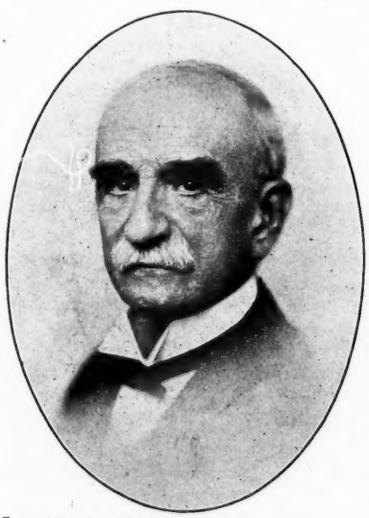
Supply Trade News

The Union Switch & Signal Company has made the following changes and appointments: Central District, Chicago office: V. K. Spicer, special representative; W. H. Talbert, resident manager; George Marloff, office manager; S. E. Gillespie and J. L. Lucks, engineers: Eastern District, New York office: A. Dean, resident manager; H. McCready, office manager; H. W. Griffin, R. P. Tuttle, J. W. White and H. H. Hamilton, engineers, and T. H. Patenall, resident manager, Montreal, Que.

William E. Magraw, president of the Railway List Company, the Railway Master Mechanic and Railway Engineering and Maintenance of Way, and for many years advertising manager of the Railway Review, died in Chicago on November 24, following an operation for a second attack of appendicitis. Mr. Magraw was born at St. Peter, Minn., in 1858, and his business life was spent in St. Paul and Chicago. He had been president of the Railway List Company for many years and has had charge of the Railway Master Mechanic and Railway Engineering and Maintenance of Way since 1909. He leaves a widow and two daughters.

William F. Bauer, assistant manager of the railway department of the Edison Storage Battery Company, Orange, N. J., has been appointed manager of the Chicago office of that company, succeeding Charles B. Frayer, who retired on November 30 to devote himself to private interests. Mr. Bauer has been engaged in storage battery work for many years. In 1889 he was the electrician in charge of the original train lighting equipment of the Pennsylvania's Chicago Limited, a lighting system designed by his father, then chief electrician of the Pullman Company. He later had experience with the Electric Accumulator Company, the Westinghouse Electric & Manufacturing Company, the Pullman Company and the Wagner Palace Car Company. In 1901 he entered the employ of the Consolidated Railway Electric Lighting & Equipment Company and two years later was appointed chief electrician of the Missouri Pacific, in charge of car lighting. In 1906 Mr. Bauer became sales engineer of the Electric Storage Battery Company. He has been with the Edison Storage Battery Company for about a year and is president of the Railway Electrical Supply Manufacturers' Association.

Eli Stillson Hart, chairman of the board of the Rodger Ballast Car Company, Chicago, and one of Chicago's oldest residents, died at his home, 2922 Prairie avenue, on November 23, after an illness of several weeks, as briefly noted last week. Mr. Hart was born in Rochester, N. Y., in 1832. In 1855 he was graduated from Hamilton College in the law school. He began the practice of law in Clinton, Ia., and came to Chicago in 1856, where he continued his law practice as a member of a leading firm of that period. In 1874, owing to ill health, Mr. Hart gave up his legal work to engage in business. He was one of the founders of the Rodger Ballast Car Company, the success of which was due to his ability, and until his death he was chairman of board of directors. Mr. Hart's integrity of character, sound judgment and kindly humor made him many friends. He is survived by three children: Miss Gertrude W. Hart, H. Stillson Hart and Mrs. Evan A. Evans.



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Eli S. Hart

Railway Construction

ALBERTA & GREAT WATERWAYS.—See Edmonton, Dunvegan & British Columbia.

CHICAGO & NORTH WESTERN.—An officer writes that track laying has just been started on the branch building from Koepenick, Wis., along Wolf river for about 7.2 miles. Contract for building this line was given to Peppard & Burrill, Minneapolis, Minn. (July 31, p. 227.)

Work has just been started on the line from Kingston, Wis., westwardly for a distance of five miles. Clery, White & Duffy are the contractors. (September 18, p. 549.)

EDMONTON, DUNVEGAN & BRITISH COLUMBIA.—An officer writes that work is now under way on the section from Smoky river, Alta., to Spirit river, 65 miles, and surveys are being made for a further extension from Spirit river to the British Columbia boundary, 64 miles. The Alberta & Great Waterways is now under construction on the section from Lac La Biche, Alta., to Fort McMurray, 160 miles. The J. D. McArthur Company, Edmonton, Alta., is carrying out the work. (September 11, p. 493.)

MONCTON & BUCTOUCHE.—An officer of this company, which operates a line from Moncton, N. B., north to Buctouche, 32 miles, writes that surveys are being made for an extension from Buctouche northwest to Loggieville, about 65 miles.

NEW YORK, PITTSBURGH & CHICAGO AIR LINE.—The rights and property of this company, which started surveys early in 1909, for a line from Pittsburgh, Pa., east to Allentown, 298 miles, were recently sold to E. T. Noble, of Evans, Noble & Evans, Pittsburgh, who represented the reorganizers of the company. It is reported that the Harriman estate is interested in the property. The projected route is from Pittsburgh, Pa., east via Indiana, Cherry Tree, Irvona, Sandy Ridge, Loveville, Tusseyville, New Berlin, Sunbury, Mahanoy City and Tamaqua to Allentown. Proceedings have been taken before the Pennsylvania Public Service Commission at Harrisburg to perpetuate the road's franchise under the new organization.

NORFOLK & WESTERN.—An officer writes that the company plans to carry out work during 1915 on an extension of the Alma branch, 2.56 miles in West Virginia and the construction of a branch up Jacobs Fork and Cucumber creek, 5.30 miles.

PACIFIC ELECTRIC.—An officer writes that this company during 1914 finished work on a total of 32.35 miles of new lines in California as follows: from Santa Ana to Orange, 1.64 miles; Lordsburg, to North Pomona, 1.54 miles; Upland to San Bernardino, 21.73 miles; Hawthorne to El Segundo, 4.42 miles; at Torrance, 0.58 miles, and at Riverside, 2.44 miles. The company also laid a total of 9.62 miles of second track. Work is now under way building an extension from Arlington to Corona on 7.75 miles.

PACIFIC, PEACE RIVER & ATHABASCA.—We are told that this company, which was given a charter last February by the Canadian government, has completed reconnoissance surveys for about 1,500 miles from a point in British Columbia on the Pacific coast east to Prince Albert, Sask. Charles F. Law, P. O. Box 116, Vancouver, B. C., may be addressed. (November 20, p. 991.)

PORTLAND RAILWAY, LIGHT & POWER COMPANY.—An officer writes that this company during 1914 built 1.74 miles of second track in Portland, Ore., to the city lines, and the Willamette Valley Southern, formerly the Clackamas Southern, which is building from Oregon City, south to Mt. Angel, 32 miles, has track laid from Beavercreek to Mt. Angel, 25.09 miles.

SALT LAKE & UTAH (Electric).—An officer writes that track laying has been finished on the line from Salt Lake City, Utah, to Provo, 48.5 miles, and it has not yet been decided when construction work will be started on the second section, from Provo via Spanish Fork and Springville to Payson, between 18 and 20 miles. W. R. Armstrong, assistant general manager and chief engineer, Salt Lake City.

SLATE BELT ELECTRIC.—This company, which operates an electric line connecting Bangor, Pa., Pen Argyl, Wind Gap and

Nazareth, is planning to build a 9-mile branch, it is said, from Wind Gap to Saylorsburg and Saylors lake.

Texas Roads.—A proposition has been submitted to residents of San Antonio, Texas, and Bexar county, asking for a bonus of $87,500 in aid of a line to be built from San Antonio. The proposed route from San Antonio is north to Johnson City, thence northwest to Robert Lee in Coke county and eventually to a point in New Mexico. James L. Himrod, Austin, Texas, is back of the project.

Visalia Electric.—An officer writes that this company, during 1914, completed work on 2.03 miles, from Rose Street Station to Elderwood, Cal.

Watauga & Yadkin River.—We are told that this company is building with its own forces an extension from Dennys, N. C., northwest to Rogers Mill, 12 miles, and surveys have been completed for a further extension from Rogers Mill northwest to Boone, 14 miles. The company does not contemplate building the extension during 1915, which was projected sometime ago from Grandin southwest to Lenoir, 16 miles. (March 27, p. 767.)

Willamette Valley Southern.—See Portland Railway, Light & Power Company.

RAILWAY STRUCTURES

Chicago, Ill.—An ordinance was introduced in the city council last week on behalf of the Baltimore & Ohio Chicago Terminal to provide for a new freight yard to be located south of Fourteenth street, between South Western avenue and South Paulina street, to take the place of the yards now located at Twelfth street, the site of which is to be used for the approach to the new Union station.

Dewey, B. C.—The Railway Commission of Canada has directed that new stations be built by the Grand Trunk Pacific on locations approved by the commission at Dewey, B. C.; Newlands, Longworth, Giscome, Lindup and Shelley, and has approved locations of new stations at Rose Lake, Forestdale, Decker Lake, Walcott, Quick, Priestly and Palling.

Johnstown, Pa.—The Pennsylvania Railroad is having plans made for a new station to be built at Johnstown. The company does not expect to let contracts for carrying out the work until 1915.

Oelwein, Iowa.—See Randolph, Minn.

Parnell, Mo.—See Randolph, Minn.

Randolph, Minn.—The Chicago Great Western has just awarded contracts for the erection of three water tanks to the Chicago Bridge & Iron Company, as follows: A 100,000-gallon steel tank at Randolph, Minn., and a similar one at Oelwein, Iowa, and an 80,000-gallon steel tank at Parnell, Mo. The foundations will be built by company forces. The Great Western has also let a contract for a 1,500-ton ice house, to be located on the company's shop ground at Oelwein, Iowa. The work on the new depot at Randolph, Minn., reported in the *Railway Age Gazette* of October 16, is nearing completion.

Spokane, Wash.—The Oregon-Washington Railroad & Navigation Company has begun work on its division terminal buildings at Spokane, which consist of an 11-stall roundhouse, a machine shop, 80 ft. by 120 ft., a power house, 40 ft. by 50 ft., a coaling plant, cinder pit and coach cleaning facilities. The power house will be of concrete construction, and the other buildings will have brick walls and mill constructed frames. Work is being done by company forces and the approximate cost will be $150,000.

The Dalles, Ore.—The improvement of the Oregon-Washington Railroad & Navigation Company at The Dalles is said to consist of a roundhouse for 30 locomotives, and additional freight handling facilities, including switch tracks, etc. The estimated cost is $140,000.

Toledo, Ohio.—The Cincinnati, Hamilton & Dayton has awarded contracts for the construction of a coal handling plant at Toledo, which was mentioned in the *Railway Age Gazette* of November 6, 1914, to Wellman-Seaver-Morgan Company, Cleveland, Ohio. The foundation will be built by the Smith-McCormick Company, Easton, Pa. The capacity of the new plant will be 40 cars an hour.

Railway Financial News

Chicago, Rock Island & Pacific.—The United States circuit court of appeals has reversed the order of the lower court which fixed November 24 as the date for the sale of the Chicago, Rock Island & Pacific Railway stock, which is collateral for the Chicago, Rock Island & Pacific Railroad 4 per cent bonds.

Gilmore & Pittsburgh.—See Northern Pacific.

Lake Shore & Michigan Southern.—J. P. Morgan & Co., New York, have bought $15,000,000 5 per cent notes of this company, of which about half will mature September 1, 1915, and the remainder on December 1, 1915. The notes are being offered at private sale at par.

Mobile & Ohio.—Although the gross operating revenues of this road in the fiscal year ended June 30, 1914, were the greatest in the history of the company, the net income after the payment of expenses, rentals, taxes and interest was but $85,109 as compared with $641,870 in the previous year. The increase in gross operating revenues was $597,781, but the increase in total operating expenses was $1,005,630, the latter said to be due to the accident near Buckatunna, Miss., on October 19, 1913, in which 17 persons were killed and 171 were injured; to the difficulties in operation caused by the work, since completed, of raising the tracks in and about Cairo, Ill., to provide against floods; to greater maintenance of equipment expenses and an increase of 35 per cent in empty car mileage.

The Mobile & Ohio operates 1,122 miles. The main line extends from Mobile to St. Louis with a branch to Montgomery, Ala., and the road also has trackage rights over the Illinois Central, the Northern Alabama and the Southern from Corinth to Birmingham.

In 1914 the road earned gross revenues per mile of road of $11,250 as compared with $10,783 in 1913. The freight revenue per mile of road was $9,540 in 1914, and $9,120 in 1913. The ton-mile rate in 1914 was 6.70 mills, and in the previous year 6.56 mills, the total revenue ton mileage carried being 1,598,623,994 in 1914 and 1,555,296,849 in 1913. The average trainload of revenue freight decreased as between the two years from 373 to 365 tons. The total number of passengers carried in 1914 was 2,202,092, an increase of 1.16 per cent over 1913; and the average passenger receipts per passenger mile were 2.205 cents in 1914 and 2.248 cents in the previous year.

The company paid 4 per cent dividends in 1914. The bonded debt on June 30, 1914, was $4,100,000 greater than on June 30, 1913, there having been assumed $4,000,000 of bonds of the St. Louis & Cairo, the entire lines of which (159 miles) were purchased on July 28, 1913. At the end of the year the company had on hand cash to the amount of $968,737, as compared with $754,835 on June 30, 1913. On June 30, 1914, there were loans and bills payable of $426,808.

National Railways of Mexico.—This company announces that its offer to pay coupons due April 1 last on its guaranteed general mortgage 4 per cent gold bonds and the National Railroad Company of Mexico first consolidated mortgage 4 per cent gold bonds in 6 per cent secured gold notes Series B, due January 1, 1917, has become effective. The notes have been delivered to the Guaranty Trust Company of New York who will exchange them for coupons. The offer to pay coupons due June 1 last on the 6 per cent gold notes has also become effective.

New York Central & Hudson River.—J. P. Morgan & Co., New York, who, with two banks, bought the recent issue of $40,000,000 5 per cent notes, half maturing April 1, 1915 and half October 1, 1915, are offering notes now at 99.80 and interest to yield about 5½ per cent for the notes due April 1, and at 99.15 and interest, to yield about 6 per cent for the notes due October 1.

Northern Pacific.—A press despatch from Butte, Mont., says that the Northern Pacific has bought the Gilmore & Pittsburgh, which runs from Armstead, Mont., to Gilmore, 110 miles.

[ADVERTISEMENT]

ANNUAL REPORT

THE COLORADO & SOUTHERN RAILWAY COMPANY—FIFTEENTH ANNUAL REPORT

To the Stockholders of the Colorado & Southern Railway Company:

Herewith is submitted the Fifteenth Annual Report of this Company, for the year ended June 30, 1914.

There are included the reports of A. D. Parker, Vice-President, and J. H. Bradbury, General Auditor.

By order of the Board of Directors,

HALE HOLDEN,
President.

MR. HALE HOLDEN,
President,
Chicago, Ill.

DEAR SIR:—I herewith submit the report for the fiscal year ended June 30, 1914, which report combines the operations and affairs of the lines operated by the companies named, and which are herein designated as the "COLORADO & SOUTHERN LINES."

Per Cent.	1914.	OPERATING REVENUES.	1913.	Per Cent.
68.47	$ 9,053,885.00	Freight Revenue	$10,836,134.18	71.87
25.30	3,345,489.44	Passenger Revenue	3,394,073.63	22.51
1.72	226,844.16	Mail Revenue	218,848.38	1.45
1.97	260,598.66	Express Revenue	264,279.94	1.76
1.91	252,452.15	Miscellaneous Transportation Revenue	271,113.16	1.80
.58	76,933.03	Revenue from Operations other than Transportation	89,542.64	.59
.05	6,534.92	Joint Facilities	3,685.00	.02
100.00	$13,222,737.36	Total Operating Revenues	$15,077,676.93	100.00
		OPERATING EXPENSES.		
13.75	$ 1,818,146.33	Maintenance of Way and Structures	$ 1,905,988.15	12.64
16.52	2,184,784.04	Maintenance of Equipment	3,111,512.80	20.64
1.64	216,445.43	Traffic Expenses	230,406.63	1.53
38.23	5,055,015.62	Transportation Expenses	4,901,494.00	32.50
3.57	471,611.16	General Expenses	473,560.09	3.14
73.71	$ 9,746,002.58	Total Operating Expenses	$10,622,961.67	70.45
26.29	$ 3,476,734.78	Net Operating Revenue	$ 4,454,715.26	29.55
.....	16,956.19	Net Deficit from Outside Operations	24,804.07	.....
.....	$ 3,459,778.59	Total Net Revenue	$ 4,429,911.19	.....
.....	638,450.24	Taxes Accrued	520,546.72	.....
.....	$ 2,821,328.35	Operating Income	$ 3,909,364.47	.....
		OTHER INCOME.		
.....	$ 262,487.79	Rents	$ 256,106.51	.....
.....	627,915.08	Miscellaneous Interest	588,170.54	.....
.....	$ 890,402.87	Total Other Income	$ 844,277.05	.....
.....	$ 3,711,731.22	Gross Corporate Income	$ 4,753,641.52	.....
		DEDUCTIONS FROM GROSS CORPORATE INCOME.		
.....	$ 177,662.85	Rents	$ 141,919.53	.....
.....	817.01	Miscellaneous Interest	1,203.44	.....
.....	2,853,001.18	Interest Accrued on Funded Debt	2,874,279.94	.....
.....	10,300.80	Extinguishment of Discount on Securities Sold	10,099.20	.....
.....	61,029.76	Sinking Funds	60,826.48	.....
.....	202,768.49	Miscellaneous Deductions	.....	.....
.....	$ 3,305,580.09	Total Deductions	$ 3,088,328.59	.....
.....	$ 406,151.13	Net Corporate Income	$ 1,665,312.93	.....
.....	340,265.84	Dividends	990,236.92	.....
.....	$ 65,885.29	Surplus	$ 675,076.01	.....

The total operating revenues show a decrease under the preceding year of $1,854,939.57 or 12.30%. This decrease is principally in Freight Revenue and is the consequence of a coal miners' strike in the Colorado coal fields, called on September 23rd, 1913. The first eighty-three days of the Fiscal year, which preceded the strike, showed an increase in Freight Revenue over the same period of the previous year.

Subsequent to the calling of the strike referred to however, not only revenues from coal transportation but those derived from other classes of freight, partly dependent thereon, showed a constant decrease under those of the previous year. This is more fully set forth in the "Statement of Classified Freight Tonnage and Revenue," appearing on pages 26 and 27 of this report and on pages 20 and 21 of the report for the Fiscal year ended June 30, 1913.

The total operating expenses were decreased under those of the preceding year by $876,959.09 or 8.25% and would have been still further reduced had your company not been compelled to purchase coal from mines not on the lines of your Company, at a cost more than double that of the previous year and had not the heavy snows of last winter made operation of trains and the keeping of terminal yards open for operation singularly difficult and expensive.

Taxes increased $117,903.52 over the preceding year or 22.65%. This was due to legislative action in Colorado, increasing the assessed valuation, without a corresponding reduction in the state levy; and in Texas to increase in the state rate, due to accumulated deficiency extending over several past years and a new tax of 5 cents per $100.00 valuation for the creation of pension funds.

During the fiscal year, Mortgage, Bonded and Secured Debt was decreased as follows:

First Mortgage Bonds of C. S. & C. C. D. Ry. Co. were retired through Sinking Fund	$ 58,000.00
Equipment Trust Obligations were discharged	349,226.18
Making the decrease in Mortgage, Bonded and Secured Debt	$407,226.18

The outstanding Capital Stock was reduced by the acquisition of 39.84 shares, par value $3,984.00, "Stamped Stock" of Fort Worth & Denver City Railway Company.

There were charges aggregating $165,589.26 to Property Investment for additions and betterments. Of this amount there was expended for:

Structures and Machinery	$22,897.29
Substituting Permanent Bridges for Wooden Ones	33,350.16
Additional Spur and Industry Tracks	37,668.81
Relaying Heavier Rail—Main Line	15,615.61
Laying Tie Plates—Main Line	52,942.13
Various Other Additions and Betterments	3,115.26

The property of The Trinity & Brazos Valley Railway Company was placed in the hands of a Receiver on June 16, 1914, by the Federal Court of the Northern District of Texas upon proceedings instituted by Old Colony Trust Company, Trustee, in the First Mortgage of that Company. This Company and The Chicago, Rock Island & Pacific Railway Company are joint owners in equal shares of The Trinity & Brazos Valley Railway Company in accordance with the provisions of the contract entered into in 1906 between the owning Companies, and with the beginning of operations of The Trinity & Brazos Valley Railway Company in 1907 it had been anticipated that within a reasonable time the revenues of the Company would have been sufficient to meet the operating expenses and fixed charges. At that time agreements had been made for interchange of traffic with lines other than, and in addition to, the owning Companies, which would have provided The Trinity & Brazos Valley Railway Company with an increasing business, but later the traffic of these other lines was diverted, and this fact, together with the general depression in business and increases in operating expenses, due to increased wage schedules, increased cost of material and increases in taxes, rendered it impossible for The Trinity & Brazos Valley Railway Company to meet its charges and the receivership proceedings followed.

The following statistical tables have been compiled in the form required for the Annual Report of Carriers to the Interstate Commerce Commission:

INCOME STATEMENT.

RAIL OPERATIONS—			
Operating Revenues:			
Revenue from Transportation:			
Freight	$9,053,885.00		
Passenger	3,345,489.44		
Excess Baggage	30,925.36		
Mail	226,844.16		
Express	260,598.66		
Other Passenger Train	3,408.04		
Switching	208,350.92		
Special Service Train	6,200.78		
Miscellaneous Transportation	3,567.05	$13,139,269.41	
Revenue from Operations Other than Transportation:			
Station and Train Privileges	$ 20,146.19		
Parcel Room Receipts	881.10		
Storage Freight	3,272.33		
Storage Baggage	2,424.11		
Car Service	38,405.52		
Rent of Buildings and Other Property	6,664.57		
Miscellaneous	5,139.21	$ 76,933.03	
Joint Facilities Cr.		6,534.92	
Total Operating Revenues		$13,222,737.36	
Operating Expenses:			
Maintenance of Way and Structures	$1,818,146.33		
Maintenance of Equipment	2,184,784.04		
Traffic Expenses	216,445.43		
Transportation Expenses	5,055,015.62		
General Expenses	471,611.16	$9,746,002.58	
Net Operating Revenue			$3,476,734.78
OUTSIDE OPERATIONS—			
Revenues		$ 105,987.29	
Expenses		122,943.48	
Net Deficit from Outside Operations			$ 16,956.19
Total Net Revenue			$3,459,778.59
Railway Tax Accruals			638,450.24
Railway Operating Income			$2,821,328.35

OTHER INCOME.

Income from Lease of Road	$ 214,208.82	
Joint Facility Rent Income	22,732.54	
Miscellaneous Rent Income	25,546.43	
Separately Operated Properties—Profit	1,443.41	
Dividend Income	27,000.00	
Income from Funded Securities	492,153.93	
Income from Other Securities and Accounts	25,023.94	
Miscellaneous Income	82,293.80	$ 890,402.87
Gross Income		$3,711,731.22

DEDUCTIONS FROM GROSS INCOME.

Hire of Equipment—Balance	$ 96,200.72	
Joint Facility Rent Deductions	41,019.16	
Miscellaneous Rent Deductions	40,442.97	
Interest Deductions for Funded Debt	2,853,001.18	
Other Interest Deductions	817.01	
Amortization of Discount on Funded Debt	10,300.80	
Miscellaneous Deductions	202,768.49	$3,244,550.33
Net Income		$ 467,180.89

DISPOSITION OF NET INCOME.

Appropriations of Income to Sinking Funds	$ 61,029.76	
Dividend Appropriations of Income:		
First Preferred Stock—2 per cent., payable Oct. 1, 1913	170,000.00	
Second Preferred Stock—2 per cent., payable Oct. 1, 1913	170,000.00	
Other Dividends	265.84	$ 401,295.60
Income Balance Transferred to Credit of Profit and Loss		$ 65,885.29

PROFIT AND LOSS STATEMENT.

Credit:		
Balance June 30, 1913	$ 5,542,665.55	
Balance for Year brought forward from Income Account	65,885.29	
Additions for Year:		
Miscellaneous Credits	85,342.94	$5,693,893.78
Debit:		
Appropriations of Surplus	$ 235,842.80	
Deductions for Year:		
Book Value of Securities Written down	$2,633,994.56	
Miscellaneous Debits	168,604.77	2,802,599.33 $3,038,442.13
Balance Credit, June 30, 1914.		$2,655,451.65

GENERAL BALANCE SHEET.

JUNE 30, 1914.

ASSETS.

Property Investment—Road and Equipment:		
Road	$94,372,289.71	
Equipment	15,463,273.26	$109,835,562.97
Reserve for Accrued Depreciation—Credit		3,196,105.89
Total		$106,639,457.08
Securities:		
Securities of Proprietary, Affiliated and Controlled Companies—Pledged—		
Stocks	$ 413,308.21	
Funded Debt	8,760,000.00	9,173,308.21
Securities of Proprietary, Affiliated and Controlled Companies—Unpledged—		
Stocks	$ 112,120.00	
Funded Debt	1,440,498.05	1,552,618.05
Total		$ 10.725,926.26
Other Investments:		
Advances to Proprietary, Affiliated and Controlled Companies for Construction, Equipment and Betterments.		$ 301,452.27
Miscellaneous Investments—		
Physical Property	$ 4,710.00	
Securities Pledged	1,021,557.30	
Securities Unpledged	48,457.40	1,074,724.70
Total		$ 1,376,176.97
Working Assets:		
Cash		$ 662,852.20
Securities Issued or Assumed, Held in Treasuries—Funded Debt		4,058,276.55
Loans and Bills Receivable		124,061.00
Traffic and Car Service Balances Due from Other Companies		228,932.45
Net Balance Due from Agents and Conductors		188,316.58
Miscellaneous Accounts Receivable		387,525.90
Materials and Supplies		1,271,695.43
Other Working Assets		6,334.38
Total		$ 6,927,994.49
Accrued Income Not Due:		
Unmatured Interest Dividends and Rents Receivable		$ 149,469.46
Deferred Debit Items:		
Advances—		
Working Funds	$ 984.18	
Other Advances	156,071.17	$ 157,055.35
Rents and Insurance Paid in Advance		23,322.92
Unextinguished Discount on Funded Debt		214,277.84
Special Deposits		121,621.71
Cash and Securities in Sinking Funds		14.01
Other Deferred Debit Items		64,664.06
Total		$ 579,955.89
Grand Total		$126,398,980.15

GENERAL BALANCE SHEET.

JUNE 30, 1914.

LIABILITIES.

Capital Stock:		
Common Stock		$ 31,021,484.00
Preferred Stock		17,000,000.00
Total		$ 48,021,484.00
Mortgage, Bonded and Secured Debt:		
Funded Debt—		
Mortgage Bonds—		
Held by Companies	$ 4,058,276.55	
Not Held by Companies	61,548,900.00	65,607,176.55
Equipment Trust Obligations		557,226.18
Total		$ 66,164,402.73
Working Liabilities:		
Loans and Bills Payable		$ 116,211.00
Traffic and Car Service Balances Due to Other Companies		347,849.51
Audited Vouchers and Wages Unpaid		1,150,289.64
Matured Interest, Dividends and Rents Unpaid		78,418.01
Other Working Liabilities		29,064.82
Total		$ 1,721,832.98
Accrued Liabilities Not Due:		
Unmatured Interest, Dividends and Rents Payable		$ 625,688.18
Taxes Accrued		427,981.67
Total		$ 1,053,669.85
Deferred Credit Items:		
Other Deferred Credit Items		$ 47,461.71
Appropriated Surplus:		
Additions to Property since June 30, 1907, through Income		$ 4,571,933.41
Reserves from Income or Surplus—		
Invested in Sinking Funds	$ 30,322.74	
Invested in Road and Equipment	1,589,251.76	
Not Specifically Invested	543,169.32	2,162,743.82
Total		$ 6,734,677.23
Profit and Loss:		
Balance		$ 2,655,451.65
Grand Total		$126,398,980.15